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Effects of Knowledge, Beliefs, Self-Regulation, and Social Facilitation on Physical Activity Engagement of African American Women

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ABSTRACT

EFFECTS OF KNOWLEDGE, BELIEFS, SELF-REGULATION, AND SOCIAL FACILITATION ON PHYSICAL ACTIVITY ENGAGEMENT OF AFRICAN AMERICAN WOMEN

by

ELICIA S. COLLINS

Low participation in physical activity is rapidly becoming a global health concern. Among the 7.5 billion people worldwide, 31% (2.3 billion) are physically inactive and 3.2 million die annually because of a lack of physical activity. Because African American women have been identified as the least active demographic group, and have the highest overweight and obesity rates among all other demographic groups they are at significant risk for health problems associated with low physical activity. The purpose of this quantitative study was to examine the effect of knowledge, beliefs, self-regulation, and social facilitation on increasing physical activity in African American women through a 6-week, investigator designed intervention. Understanding the effect of knowledge, self-regulation, and social facilitation may provide a broadened clinical understanding of low physical activity in African American women and may lead to sustainable methods and outcomes for increasing physical activity. A two-group pretest/posttest, quasi-experimental design was used to frame this 6-week intervention. This design allowed for knowledge and beliefs about physical activity and self-regulation and social facilitation to be quantified in order to test differences between the intervention and control groups at baseline and 2 weeks post-intervention. The participants in this study were recruited from two different counties in the southeastern United States. Thirty-seven African American women between 20 and 70 years were recruited using convenience sampling. The analysis indicated a statistically significant

difference in perceived friends' social facilitation of physical activity. For those women who completed the treatment, significant positive correlations were found between their level of confidence to engage in physical activity and their perceived level of family support, self-regulation, and strenuousness of physical activity. Correlations between friend support and strenuousness, strenuousness and frequency of physical activity, and strenuousness and frequency of physical activity and self-efficacy were also significant. Findings from this study revealed a significant relationship between social facilitation and physical activity in African American women. To improve the GET FIT DON'T QUIT intervention, additional studies should employ techniques to increase knowledge about physical activity guidelines that are meaningful to the study participants to identify differences between groups.

EFFECTS OF KNOWLEDGE, BELIEFS, SELF-REGULATION, AND SOCIAL
FACILITATION ON PHYSICAL ACTIVITY ENGAGEMENT
OF AFRICAN AMERICAN WOMEN

by

ELICIA S. COLLINS

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Presented in Partial Fulfillment of Requirements for the
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List of Abbreviations

ANCOVA	Analysis of covariance
BMI	Body mass index
CDC	Centers for Disease Control and Prevention
CONSORT	Consolidated Standards of Reporting Trials
DHHS	U.S. Department of Health and Human Services
ITHBC	Integrated theory of health behavior change
MANCOVA	Multivariate analysis of covariance
PAAI	Physical Activity Appraisal Inventory
SEE	Self-Efficacy for Exercise Scale
SSRQ	Short Self-Regulation Questionnaire
WHO	World Health Organization

CHAPTER I

INTRODUCTION

Low participation in physical activity is rapidly becoming a global health concern. Among the 7.5 billion people worldwide, 31% (2.3 billion) are physically inactive and 3.2 million die annually because of a lack of physical activity (World Health Organization [WHO], 2019b). Similar concerns have been identified in the U.S. population of 327 million people; 80% (261.6 million) do not comply with the 2008 physical activity guidelines for aerobic conditioning (U.S. Department of Commerce; 2018; U.S. Department of Health and Human Services [DHHS], 2017a). Participating in physical activity (a) controls weight, (b) reduces the risk of cardiovascular disease and diabetes (Centers for Disease Control and Prevention [CDC], 2015c), (c) improves health outcomes, and (d) reduces overweight and obesity prevalence (CDC, 2016a). African American women are the least active demographic group (Joseph, Keller, Affuso, & Ainsworth, 2017), are less engaged in physical activity than their White, female counterparts (Armstrong, 2013; Harley et al., 2014; Henderson, 2011), and have the highest overweight and obesity rates among other demographic groups in the United States (DHHS, 2016a); thus the focus of this review.

Eighty-two percent of African American women older than age 20 years in the United States are either overweight or obese compared to 64% of White women (CDC, 2016c; U.S. Department of Health And Human Resources, 2017b). Moreover, 57% of African American women older than 20 years in the United States are obese compared to

35% of White women (CDC, 2016c). The health consequences of low physical activity are many, including being overweight and obese (CDC, 2015d). These consequences are concerning because of the problems associated with overweight and obesity. Problems associated with overweight and obesity include an increased risk of hypertension, type 2 diabetes, and coronary artery disease (CDC, 2015e). Risks such as these are problematic for African American women, because one out of four African American women older than 55 years have diabetes (DHHS, 2010), 45% of African American women have hypertension (CDC, 2016b), and 49% of African American women age 20 years and older have cardiovascular disease (American Heart Association, 2017). Both diabetes and hypertension contribute to cardiovascular disease risk (American Heart Association, 2015). To mitigate the problems that occur because of overweight and obesity in African American women, interventions to increase physical activity are needed.

Low physical activity, diabetes, and obesity are leading risk factors for heart disease (Boggs et al., 2011; Noonan, Velasco-Mondragon, & Wagner, 2016). Approximately half of African American women have cardiovascular disease (American Heart Association, 2017), and greater than 75% of this population is either overweight or obese (CDC, 2016c). Engaging in physical activity has the potential to prevent excess weight gain by increasing energy expenditure (National Institute of Diabetes and Digestive and Kidney Diseases, 2013), which can lead to weight loss and maintenance (CDC, 2015c). Physical activity also has the potential to reduce the risk of diabetes and cardiovascular disease, thus lowering blood glucose levels and blood pressure. Because the benefits of physical activity can reduce the risk of cardiac disease, and prevent excess weight gain (CDC, 2015c), increasing physical activity engagement may decrease the prevalence of overweight and obesity in African American women.

Increasing physical activity may benefit African American women; however, research has shown that interventions have not been effective in increasing and sustaining physical activity in African American women (Joseph, Ainsworth, Keller, & Dodgson, 2015; Whitt-Glover, Goldmon, Karanja, Heil, & Gizlice, 2012). Despite well-documented benefits of increased physical activity, barriers to physical activity may provide an explanation for African American women's lack of physical activity:

- a lack of time (CDC, 2017)
- neighborhood safety (Baruth, Sharpe, Parra-Medina, & Wilcox, 2014)
- job demands and fatigue (Henderson, 2011)
- cultural tolerance for larger body sizes (Capodilupo, 2014; Chugh, Friedman, Clemow, & Ferrante, 2013; Thompson-Brenner, Boisseau, & St. Paul, 2011)
- familial caretaking responsibilities (Gletsu & Tovin, 2010)
- hairstyle preservation (Joseph et al., 2018; Versey, 2014)
- childcare responsibilities (Gletsu & Tovin, 2010)
- lack of self-efficacy (CDC, 2017)
- misinformation about physical activity (Evans, 2011)
- culture (Jones, Hopson, & Gomes, 2012)

Background of the Problem

Physical activity interventions for African American women have been developed and explored. Examples of interventions that have been studied are physical activity engagement and maintenance strategies (Murrock & Gary, 2008), and the incorporation of physical activity and healthy eating strategies into lifestyles (Scarinci et al., 2014). Maintenance is sustained behavior during a specific period, or after the implementation

of an intervention, and health is improved (Kahlert, 2015); whereas, engagement involves commitment, effort, or an immersion into a behavior (Schaufeli, 2013).

In many studies, modest increases in physical activity have occurred; nevertheless, physical activity maintenance remains a challenge (difficult) for African American women (Harley et al., 2014). Some challenges to physical activity may include the lack of finances to purchase fitness club memberships, the development of bodily injuries or physical strain that may exacerbate existing conditions, and relapses into previous sedentary behaviors (Harley et al., 2014). A lack of self-respect and self-discipline were also identified as challenges to physical activity in 14 low-income African American women (Huebschmann, Campbell, Brown, & Dunn, 2015).

Because of the ineffectiveness of interventions to increase and maintain physical activity in African American women, innovative approaches that test new interventions are needed to assist this population with understanding the benefits and importance of a consistent physical activity regimen (American Psychological Association, 2014). Because of variations that exist among different racial groups, personal, culturally tailored interventions are often successful at increasing physical activity (Artinian et al., 2010; Stuart-Shor, Berra, Kamau, & Kumanyika, 2012).

Interventions that acknowledge African American culture and value systems and include knowledge, self-regulatory processes, and social facilitation components are important to increasing physical activity (American Psychological Association, 2014; Ryan, 2009). Embracing African American culture and values is important because each influences behavior and has the potential to modify physical activity practices (Stuart-Shor et al., 2012). While physical activity interventions for African American women have been explored (Ingram, Wilbur, McDevitt, & Buccholz, 2011; Rimmer, Hsieh,

Graham, Gerber, & Gray-Stanley, 2010), barriers to physical activity engagement have contributed to the development of health conditions (e.g., hypertension and diabetes), that are associated with low physical activity (Joseph, Ainsworth, et al., 2015). Ingram et al. (2011) explored physical activity barriers in 51 African American women and Rimmer et al. (2010) used a telephone intervention with a coaching component to remove physical activity barriers in 33 obese African American women with disabilities. Both studies examined the effect of barriers on physical activity. Each study found that the lack of support groups and African American role models (Ingram et al., 2011), pain from physical activity engagement (Ingram et al., 2011; Rimmer et al., 2010), and insufficient knowledge about physical activity were barriers to physical activity engagement (Rimmer et al., 2010). Cultural and ethnic experiences often do not prioritize physical activity leading to insufficient knowledge and prevents some African American women from engaging in physical activity (Im et al., 2012).

Lack of knowledge about physical activity is one barrier that may reduce physical activity engagement. Pekmezi et al. (2013) examined physical activity in a sample of 56 African American women and discovered that participants associated physical activity with an increase in bodily injuries. Because of the misconception that African American women associated with physical activity such as acquiring injury to the body, physical activity engagement did not occur (Im et al., 2012; Pekmezi et al., 2013). Studies exploring how knowledge about physical activity may be a barrier to physical activity engagement in African American women are needed (Joseph, Ainsworth, et al., 2015). Because this gap in the literature exists, this pilot study explored if increasing knowledge and changing beliefs about physical activity increased physical activity engagement.

Another variable that influences physical activity in African American women is social facilitation (Whitt-Glover & Affuso, 2017). Social facilitation is the influence and support from those who assist with improving an individual's health behaviors (Ryan, 2009). These influences include family members, friends, and other sources that provide health promoting behavioral support. Social support systems and social connections are important to overall health because of the ability of each to increase perceived self-efficacy and to promote healthy behavior (Pender, Murdaugh, & Parsons, 2011).

Self-regulation, described as a series of actions that cause behaviors to occur, is a concept that involves goal setting and self-monitoring, and is necessary for goal attainment (Zimmerman & Schunk, 2011). No studies have explored the combined effect of knowledge and social facilitation on self-regulatory practices related to physical activity in African American women. Multiple component interventions have been more successful at increasing physical activity than single intervention strategies (Allen & Morey, 2010). Because of the lack of success of single intervention strategies for African American women (Tussing-Humphreys, Fitzgibbon, Kong, & Odoms-Young, 2013), and the gap that exists in the number of studies about multiple intervention strategies that increase physical activity in African American women, further investigation of such strategies was warranted. A specific, multiple component intervention (incorporating knowledge, self-regulation, and social facilitation to increase physical activity) was used because interventions with multiple components have been described as effective and best practice strategies for increasing physical activity (Allen & Morey, 2010).

Statement of Purpose

Studies have examined the influence of the following on physical activity in African American women and knowledge (Bowen, Eaves, Vance, & Moneyham, 2015;

Evans, 2011; Krans & Chang, 2012; Pekmezi et al., 2013; Sebastião, Chodzko-Zajko, & Schwingel, 2015), self-regulation (Adams, Burns, Forehand, & Spurlock, 2015; Harley, 2014; Miles, Krufer, Liao, Carlson, & Fulton, 2011; Ries et al., 2014; Rodriguez, Christopher, Johnson, Wang, & Foody, 2012), and social facilitation (Alvarado, Murphy, & Guell, 2013; Cho, Jae, & Choo, 2013; Evans, 2011; Huebschmann et al., 2015; Jones & Paxton, 2015; Pekmezi et al., 2016). Because most interventions to increase and maintain physical activity in African American women have been ineffective, the American Psychological Association (2014) urged the development of innovative approaches to assist this population in understanding the importance of a physical activity regimen. Although knowledge, self-regulation, and social facilitation have been studied individually, no studies have been located that have examined how these three variables together may increase physical activity in African American women.

The goal of this current study was to increase physical activity in African American women through a comprehensive, 6-week intervention that increases knowledge and changes beliefs about physical activity, using social facilitation, and self-regulation. The current pilot study used a two-group pretest/posttest quasi-experimental design to examine the effect knowledge, beliefs, self-regulation, and social facilitation have on increasing physical activity in African American women.

Research Questions

The current pilot study examined changes in knowledge and beliefs about physical activity, perceptions of social facilitation, and perceived self-regulation and sought to determine the relationship of those variables to physical activity in African American women. The specific aim of this pilot study was to examine the collective effect of knowledge and beliefs, social facilitation, and self-regulation on the physical

activity of African American women using an investigator-designed intervention called GET FIT DON'T QUIT. The following hypothesis and research questions were used.

H1: There will be a significant increase in physical activity engagement at 6 weeks for African American women who participate in the culturally sensitive GET FIT DON'T QUIT intervention compared with the control group.

RQ1: Is there a significant increase in knowledge about physical activity at 6 weeks for African American women in the treatment group compared with the control group, after controlling for pre-intervention differences?

RQ2: Is there a significant increase in level of confidence to engage in physical activity at 6 weeks for African American women in the treatment group compared with the control group, after controlling for pre-intervention differences?

RQ3: Is there a significant increase in physical activity at 6 weeks for African American women in the treatment group compared with the control group, after controlling for pre-intervention differences?

RQ4: Is there a significant increase in perceptions of social facilitation of physical activity at 6 weeks for African American women in the treatment group compared with the control group, after controlling for pre-intervention differences?

RQ5: Is there a significant increase in perceived self-regulation of physical activity at 6 weeks for African American women in the treatment group compared with the control group, after controlling for pre-intervention differences?

- RQ6: Is there a significant increase in perceived self-efficacy for engaging in physical activity at 6 weeks for African American women in the treatment group compared with the control group, after controlling for pre-intervention differences?
- RQ7: Are there significant relationships among physical activity, knowledge about physical activity, self-regulation, perceptions of social facilitation of physical activity, self-regulation of physical activity, and self-efficacy for engaging in physical activity in African American women who completed a culturally sensitive intervention?

Theoretical Framework

The integrated theory of health behavior change (ITHBC; Ryan, 2009) was the theoretical framework to guide this pilot study. A variety of theoretical categories exists in the discipline of nursing to frame research. These include grand and middle range theories (Peterson & Bredow, 2017). Grand theories are described as broad, abstract theories that provide information about nursing's mission and goals (Meleis, 1997). Grand theories guide nursing practice by providing a framework for education that helps with the foundation of nursing practice (McKenna, 1997). In contrast, middle range theories are described as less abstract, with a more narrow focus, and are applicable to nursing practice (Meleis, 1997; Peterson & Bredow, 2017). The ITHBC is a middle range theory that predicts that health behavior change and the management of chronic conditions is a dynamic process that requires desire, motivation, and self-reflection to change behaviors (see Figure 1). Each of the interrelated concepts of the overall health ITHBC leads to proximal (engagement in self-management behaviors) and distal outcomes (benefits of self-management behaviors on overall health) that influence health

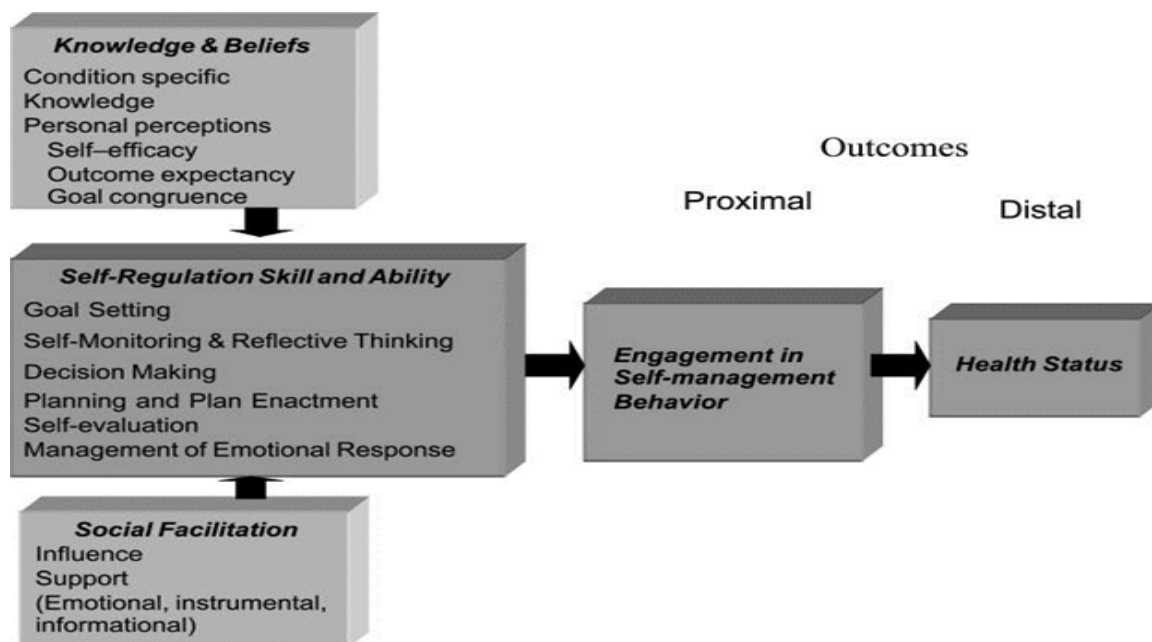


Figure 1. Ryan's model of the integrated theory of health behavior change. Adapted from "Integrated theory of health behavior change," by P. Ryan, 2009, *Clinical Nurse Specialist*, 23(3), p. 165.

behavior and improve status (Ryan, 2009). In the study, the variables of interest in the ITHBC were knowledge and beliefs, self-regulation, and social facilitation.

To meet the investigator's goals, distal outcomes, an original construct, was omitted because of the time required to realize the benefits, which are estimated to be approximately 6 months (Church, Earnest, Skinner, & Blair, 2007). Therefore, only the proximal outcome of increased physical activity was measured. This adapted model provided the theoretical framework for the study (see Figure 2).

Knowledge and Beliefs

For the purposes of this study, knowledge is defined as the information about physical activity whereas beliefs include personal perceptions about physical activity in African American women. Increased knowledge about physical activity is needed to increase engagement in African American women because many in this subpopulation are unaware of sufficient activities (brisk walking, jogging, etc.) for engagement (Krans

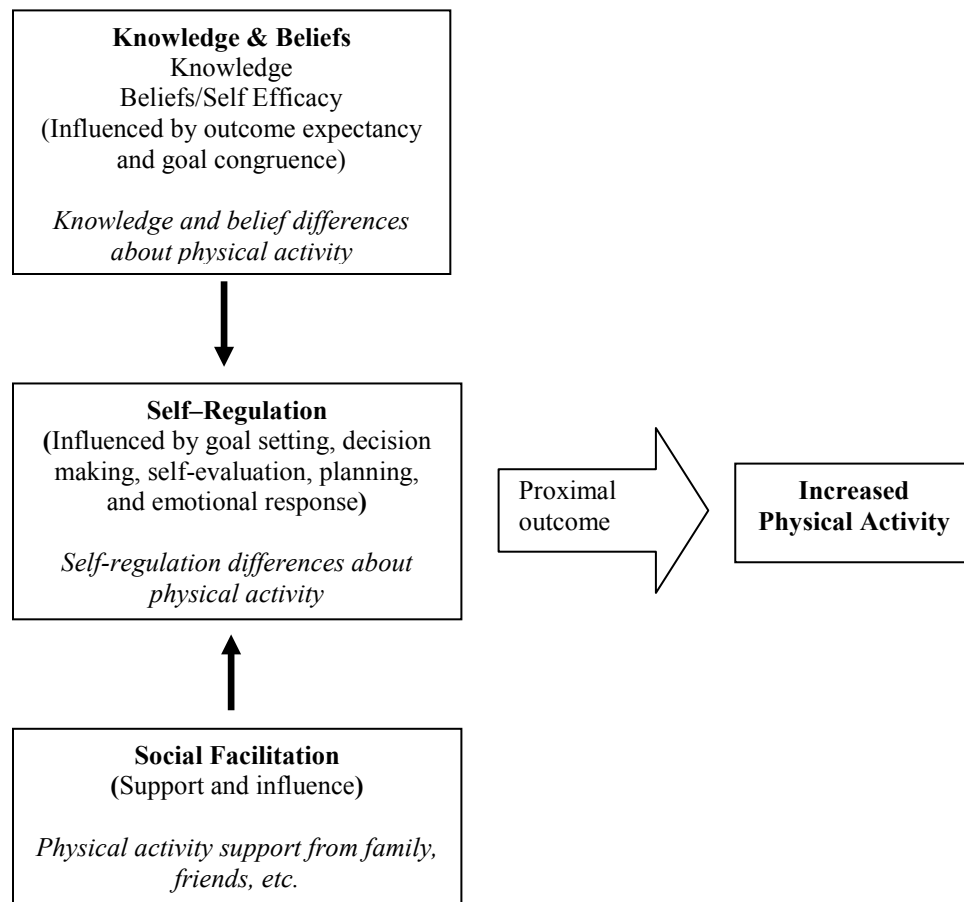


Figure 2. Adapted model of health behavior change.

& Chang, 2012; Pekmezi et al., 2013). Moreover, information about beliefs and physical activity in African American women is needed because cultural influences do not make physical activity a priority for this group (Im et al., 2012). Additional information about belief systems may help develop strategies to increase physical activity engagement.

Self-Regulation

Self-regulation is defined as goals, strategies, emotional management, and self-evaluative techniques that are incorporated into daily routines and schedules to augment behavior change (Ryan, 2009). Self-regulation involves the executive functioning process of self-directed action and changes in behavior (increase physical activity) to achieve goals (Buckley, Cohen, Kramer, McAuley, & Mullen, 2014). Goals help to

focus an individual's attention on the behavior (decreased physical activity) to be changed (Locke & Latham, 2002). Setting clear, challenging goals can be motivational and often encourages people to work harder to achieve the desired goal, especially if they believe goals can be attained (Furze, 2015; Locke & Latham, 2002).

Self-evaluation and emotional management also comprise self-regulation and are important to goal attainment. Self-evaluation or self-assessment is described as a method that involves self-judging and decision making about what comes next in a process (Boud, 1995). Self-evaluation or self-assessment is important to goal attainment because each may function as a form of self-monitoring that assists with achieving the desired goal. Strategies are described as methods or the steps that assist with achieving the goals. For example, the CDC (2017) proposed strategies to increase physical activity: (a) taking the stairs or (b) implementing health behavior change programs (i.e., neighborhood walking programs). Each example is a method that can be used to achieve the goal of increasing physical activity. Finally, emotional management, a component of emotional intelligence (the perception of, and the generation of emotions to assist thought, to help with understanding and regulating emotions to enhance intellectual growth) is a method of regulating and enhancing emotions (Mayer & Salovey, 1997). These feelings are important to the self-regulatory process because emotions transfer information (Mayer, 2005) and may affect goal attainment positively or negatively.

Self-regulation skills and abilities such as goal-setting, self-monitoring, self-evaluation, and decision-making are important to behavior change (increased physical activity). Ryan (2009) suggested that self-regulation is needed to incorporate strategies and techniques in daily routines that include physical activity for African American women. African American women may increase their physical activity levels by

incorporating self-evaluative techniques and using goal-setting behaviors to increase physical activity. Increasing physical activity in African American women by using self-regulation strategies may decrease negative consequences of decreased physical activity.

Social Facilitation

Social facilitation, which involves influence and support, has been identified as a necessary component for physical activity engagement (Alvarado et al., 2013; Evans, 2011; Jones & Paxton, 2015). Examples of those who can provide or serve as a source of social support and influential people may include friends, siblings, spouses, and healthcare providers. The inclusion of influence and support persons in this pilot study may assist with increasing physical activity in African American women because support is important to the overall well-being of African Americans. These mechanisms are used as a source of support and coping (Linnabery, Stuhlmacher, & Towler, 2014).

Linnabery et al. (2014) examined the role of social support from family and community in a sample of 188 African American professionals. Interactions were found between self-help coping and support on job role strain, positive relationships between self-help coping and social support, and social support and career satisfaction. Findings from the study indicated that social support from family and the church were related to well-being and life satisfaction (Linnabery et al., 2014).

The ITHBC theorizes that behavior-specific knowledge is linked to self-regulation, provides information about skills, self-monitoring techniques, self-regulation, and self-evaluative components needed to increase physical activity in African American women. Social facilitation from support persons enhances the self-regulatory processes and physical activity engagement leading to the proximal outcome of increased physical activity. The theory provides the foundation necessary to develop an intervention that

will encourage behavior change. Moreover, the theory suggests that the incorporation of knowledge and beliefs, self-regulation skills, and social facilitation allows for engagement in self-management behaviors, and the potential for positive outcomes to change and maintain the intended behavior (Ryan, 2009). This pilot study was designed to determine if a culturally sensitive intervention would increase physical activity in African American women using a combination of ITHBC strategies. Physical activity may be increased by (a) increasing knowledge about health consequences and benefits of physical activity, (b) embracing belief systems that correct misconceptions about physical activity, (c) promoting self-regulation of physical activity, and (d) providing support for physical activity through social facilitation.

Definition of Terms

This section includes a list of key terms used throughout the document. Providing descriptions of key terms will provide clarity and ensure understanding.

African American. Individuals or immigrants with diverse backgrounds who may have lived in Africa, Central and South America, the Caribbean, and England, France, or The Netherlands and their descendants, in addition to the descendants of slaves and free American Blacks (Arthur & Katkin, 2006).

African American woman. An African American woman is any woman who self-identifies as African American.

Confidence/self-confidence. Confidence or self-confidence are terms that describe an individual's perception of her own belief in her abilities (Perry, 2011). The terms confidence and self-confidence were used interchangeably in this paper.

Cultural sensitivity. A term that describes an individual's personal awareness and attitude that cultural and ethnic differences exist without placing value on those

differences. It also refers to refraining from the use of offensive language when communicating with different cultures (Purnell, 2013).

Culture. Culture refers to the collective influence of socially transmitted behaviors, customs, ideas, values, life processes, human works, and thought characteristics of a population that guides their perception of the world and their decision-making processes (Purnell, 2013; University of Kansas, 2016).

Exercise. Exercise is a form of physical activity that is structured and planned and is used to maintain or improve physical fitness (WHO, 2019a).

Physical activity. Physical activity is movements caused by the contraction of skeletal muscle that increases energy expenditure (CDC, 2015a; WHO, 2019a).

Significance of the Study

The development of comorbid conditions are frequently increased in African Americans women because of low physical activity (CDC, 2015d). A broadened clinical understanding of inadequate physical activity in African American women may lead to sustainable methods and outcomes for increasing physical activity. Increased physical activity promotes health and decreases the burden of disease by mitigating the number of overweight and obese African American women (CDC, 2015c). Identifying for the first time the combined effect of knowledge and beliefs, self-regulatory practices, and social facilitation on increasing physical activity in African American women will assist in understanding the pervasive issue of low physical activity engagement. Moreover, identifying the effects of the knowledge and beliefs, self-regulatory practices, and social facilitation may also result in the development of important techniques and strategies that will decrease the number of physically inactive African American women.

The pilot study may provide information to clinicians who can develop supportive, effective, and comprehensive strategies to increase physical activity among African American women. The expansion of the current body of knowledge is consistent with the Surgeon General's call to action to promote walkable communities (DHHS, 2016b). Decreasing the risk of obesity and the associated consequences in African American women may also decrease the annual \$190.2 billion cost of illnesses related to obesity and physical inactivity in the United States (Institute of Medicine of the National Academies, 2012, 2015).

Summary

African American women make up a segment of the U.S. population that is adversely affected by low physical activity. Cultural practices and barriers affect physical activity engagement in this demographic. By examining the collective effect of knowledge and beliefs, social facilitation, and self-regulation on increasing physical activity in African American women, physical activity may be increased.

CHAPTER II

LITERATURE REVIEW

The goal of this pilot study was to test the effectiveness of a culturally sensitive intervention for improving physical activity in African American women. The intervention included increasing knowledge and beliefs about physical activity, social facilitation, and self-regulation. This chapter contains a review of the literature related to the theoretical framework selected to guide the study, culturally sensitive interventions, and African American women's knowledge, self-regulation, and social facilitation as they apply to physical activity engagement. Several search engines were used to provide information on physical activity: CINAHL, EBSCOhost, Google/Google Scholar, Medline, and ProQuest. Several search terms were used to provide information about physical activity and African American women: *African American women, Black women, consequences of physical inactivity, physical activity, cultural factors that influence physical inactivity, culturally sensitive interventions, integrated theory of health behavior change, knowledge and physical activity, self-regulation and physical activity, and social facilitation and physical activity.*

Culturally Sensitive Interventions

Culture influences many actions, behaviors, customs, and traditions of groups. Culture has the potential to guide health preventative and promotion behaviors, and to influence beliefs about physical activity engagement and dietary practices because of its potential to affect lifestyle practices (Purnell, 2013). The inclusion of culturally sensitive

components in an intervention is proposed to increase the acceptance by participants and promote success of an intervention (Joseph et al., 2017; Stuart-Shor et al., 2012).

Culturally Sensitive Interventions in Other Cultures

Cultural values and mores are important. These values and mores guide beliefs and practices about behaviors. It is important to acknowledge culture when developing interventions because cultural groups have similar beliefs about behavior that may affect engagement and participation (Unger & Schwartz, 2012). Culturally sensitive interventions have been described as those that incorporate behaviors, norms, history, language, experiences, and values into both the design and delivery of the intervention's materials (Resnicow, Soler, Braithwaite, Ahluwalia, & Butler, 2000). Tailoring interventions to include culture may be effective in influencing behavior.

Language, in all forms, is important to culture. It is the primary method that is used for social communication. Words are often used to reflect ideas, but they also provide information about attitudes, beliefs, and points of view (Kramsch, 2003). Esquivel, Hooper, Baker, and McNutt (2015) examined culturally specific language to deliver the intervention in a sample of 222 Hispanics during a smoking cessation intervention with randomization into one of the following four conditions: (a) culturally specific preferred language, (b) standard preferred language, (c) culturally specific less preferred language, or (d) standard less preferred language. A significant main effect was found for intended use of preferred language materials; however, no significant effects were found for cultural specificity or the receipt of preferred language on content evaluation. Participants who received the culturally specific intervention smoked fewer cigarettes per day than those in the standard group (Esquivel et al., 2015). Results from this study indicated that some cultural intervention components might be effective in

changing behavior. This is similar to the findings from Jaber et al. (2011) who examined the feasibility of a diabetes prevention educational intervention in a sample of 71 Arab Americans. The nonrandomized sample was assigned to either the 24-week lifestyle intervention group or the 4-week educational group (participants who declined the lifestyle intervention group; lifestyle participation was reevaluated after the 4-week intervention). The goal of the educational intervention, which included Arabic words, adages, religious themes, and imagery, identified beliefs that prevented engagement in diabetes prevention and improved knowledge about diabetes. The lifestyle intervention included culturally appropriate dietary sessions, a weight loss goal that was greater than or equal to the participant's initial body weight, and 150 minutes of physical activity. They found that 44% achieved weight loss, 59% reduced their weight by greater than 5%, and 78% percent engaged in more than 150 minutes of physical activity weekly. These findings are similar to those from the Diabetes Prevention Program where 74% of the participants met their physical activity goal, and 50% met their weight loss goals. These results may suggest the importance of culturally specific components in interventions. Randomized controlled trials have been identified as the most reliable design to remove extraneous variables in determining cause and effect relationships (Polit & Beck, 2012). The recommendation for future studies includes the use of randomized controlled trials with a control component that includes a standard intervention without a cultural component to determine the cultural specificity of the intervention.

Similar to cultural language, cultural expression in the form of dance has also been used with different cultural groups. Romero (2012) tested a 5-week culturally sensitive, pretest/posttest, pilot hip-hop intervention to increase physical activity in a sample of 56 adolescent Mexican Americans. Paired *t* tests were used to assess

pretest/posttest results by gender. They found significant differences in pretest exercise frequency, posttest difficulty to exercise, posttest self-efficacy, and an increase in vigorous physical activity in adolescent girls but not boys (Romero, 2012). Preliminary evidence from this study may suggest that hip-hop as a dance intervention is an effective way to increase physical activity in Mexican American adolescents. The findings from this study require further evaluation using randomization and a control group to examine the causal effect of the intervention (Romero, 2012).

Likewise, dance was used by Marquez, Bustamante, Aguinaga, and Hernandez (2015) in a single group, pretest/posttest pilot design in a sample of nine elderly, Spanish speaking Latinos. The two-phase pilot consisted of focus groups (Phase 1), and an intervention phase (Phase 2). Paired *t* tests were used to examine pretest to posttest changes. Findings from the study indicated an increase in self-reported lifestyle physical activity and greater enjoyment of physical activity (Marquez et al., 2015), which may suggest the importance of culturally specific components within interventions. Because the pilot demonstrated substantial feasibility, the investigators proposed an 8-month randomized controlled trial that examines the impact of dance on lifetime physical activity at 4 months and maintenance at 8 months (Marquez et al., 2014).

Carter, Walker, and Abdul-Latif (2016) also used dance to increase physical activity adherence. A 4-week intervention used soul line dancing and nutrition education for 38 African Americans to increase physical activity adherence (five or more dance sessions) and fruit and vegetable consumption. Findings from the study revealed that 58% of the sample attended five or more sessions, the number of minutes of line dancing increased (38 minutes in session 1 to 60 minutes in session 8), and fruit consumption increased (Carter et al., 2016). Similar to the studies by Romero (2012), and Marquez et

al. (2015), the results of this study may suggest further evaluation using randomization and a control group to examine the effect of the intervention.

Each of the aforementioned pretests and posttests and community-based participatory studies included small-scale designs with relatively small sample sizes that lacked randomization and control groups. The purpose of these studies was to test methods that may be appropriate for larger, more rigorous studies. Although these limitations existed, each study yielded results that may suggest the importance of cultural influence on physical activity adherence in different ethnic groups.

Cultural sensitivity has been described as the use of both verbal and non-verbal messages that are sensitive and appreciative of the diversity of other cultures (American Association of Colleges of Nursing, 2008). Messages are conveyed in a way that is respectful and polite to those from other cultures. The use of culturally sensitive techniques by researchers may create a sense of trust and comfort in participants; thus, creating better dialogue and engagement in the intended behavior.

Culturally sensitive techniques were used by Bertran, Pinelli, Sills, and Jaber (2017) while examining knowledge, perceptions, and diabetes practices in a sample of 69 devoutly religious Arab American participants using focus groups. Gender specific educational and exercise sessions were used to address the delineated gender norms that are present in Arab culture (Bertran et al., 2017; Bertran et al., 2015). Because of the seriousness of their religious practices, the use of the term *Allah* was consistent throughout the sessions. Findings from the study revealed misinformation about the cause and treatment of diabetes. Additional findings included the importance of family, gender delineation, and the incorporation of religion when developing interventions for Arab Americans (Bertran et al., 2017).

Culture is a learned pattern of behavior cultivated over time. It has the potential to influence how ethnic groups perceive, manage, and experience thoughts, feelings, and behavior (Wilson, 2011). Culturally sensitive interventions have been recommended as a method to increase physical activity in African American women (Joseph, Keller, et al., 2015; Murrock & Gary, 2008). Because of the influence of culture on different groups, the integration of culturally sensitive components was used in this intervention.

Cultural Considerations Important to African American Women

Cultural and ethnic experiences, essential to the African American community, have contributed to decreased physical activity in African American women (Im et al., 2012). Acculturation into specific gender roles may be a reason for that decreased physical activity engagement. Socialization into traditional gender roles has also been identified as a barrier to physical activity engagement among African American women (Abbasi, 2014). Some women are often less willing to engage in physical activity because of traditional roles in the home (Sammarco, 2017). African American women believe in the preservation of the family by caring for children and family members (Woods-Giscombe, 2010). When compared to their Caucasian counterparts, African American women are more responsible for managing daily household operations (Strong, DeVault, & Cohen, 2010). Increased responsibility in the home has the potential to limit the amount of time available to African American women to participate in physical activity; thus leading to a greater number of African American women who are overweight and obese and have more comorbid conditions.

The African American community embraces tradition and historical customs such as cooking and eating together (DiNoia, Furst, Park, & Byrd-Bredbenner, 2013). Embracing such customs may not appear problematic until the traditional African

American diet, which frequently includes simple and complex carbohydrates, the inclusion of fats to flavor food, and cultural food preparation methods such as frying, is evaluated (DiNoia et al., 2013). Cultural dietary habits can affect physical activity in African American women. One cultural dietary practice that has the potential to affect lifestyle and compounds the physical activity problem is the inclusion of simple carbohydrates in dietary regimens. When simple sugars are ingested, the body goes through a series of metabolic changes that may lead to increased caloric consumption, and the rapid increase of blood glucose levels. Moreover, carbohydrates with a high glycemic index (the rate at which food consumption increases blood sugar levels) increases insulin production. Increased insulin production results in low blood sugar levels, hunger, and the consumption of excess caloric intake (Youdim, 2016). Excess caloric consumption without physical activity increases the risk of overweight, obese, chronic, and comorbid conditions in African American women.

Culture and tradition are important and are embedded in the African American community. An example of such traditions is storytelling. Storytelling is described as the oral tradition of stories, customs, mores, proverbs, and cultural traditions and expressions that have never been written down (Hamlet, 2011). To overcome various aspects of resistance to changes in health-related behavior, storytelling may be an appropriate vehicle for this population (Thompson & Kreuter, 2014). Because of the importance of culture to this population (Kumanyika, Whitt-Glover, & Haire-Joshu, 2014) and its potential effect on physical activity engagement, interventions that embrace values and belief systems have been recommended for African American women (American Psychological Association, 2014). To help ensure that the value systems and personal preferences of African American women are addressed when developing

physical activity interventions, it is necessary to acknowledge the cultural customs of this population (Henderson, 2011). Cultural customs will be addressed in this study by using African American churches that promote African American values and mores.

Culturally Sensitive Interventions in African American Communities

Several culturally sensitive interventions have been developed for use with the African American community. A community-based, culturally sensitive walking intervention was developed by Miles et al. (2011) for African Americans in local African American communities where walking interventions, in the form of walking clubs and groups, were already implemented. Women ($n = 15,038$) comprised approximately two thirds of the African American study sample. Results from this study demonstrated increases in regular walking (23% in 2002 to 27% in 2005) and any walking (68% in 2002 to 73% in 2005) over 5 years (Miles et al., 2011). Median walking minutes increased from 126 minutes in 2002 to 150 minutes in 2005 (Miles et al., 2011). The significant increases in physical activity may support the development of local, culturally sensitive physical activity interventions with African American female participants.

Similarly, Murrock and Gary (2008) used culture in a church-based intervention and increased functional capacity (distance walking) in both intervention and control groups at 8 and 18 weeks. Cultural dance increased functional capacity and decreased obesity in a sample of 126 African American women in two African American churches. Additional cultural components included an African American female dance instructor and the use of gospel music during the intervention. The primary investigator and four research team members were African American females. Functional capacity improved within both groups at 8 and 18 weeks. Between-group differences were also identified at

18 weeks; functional capacity increased significantly in those who participated in the culturally sensitive intervention (Murrock & Gary, 2008).

Dance is symbolic for African American women and can be a form of cultural expression. Using cultural dance as a health promotion activity may be one way to increase physical activity in African American women. However, cultural dance was not a part of the intervention for the current study. Nevertheless, because of the importance of culture to this subgroup of the population, the integration of culture was included in the intervention.

Similarities between the Miles et al. (2011) and Murrock and Gary (2008) studies include the use of African American participants in African American communities and the support of cultural norms and mores. Working within African American communities often creates a sense of trust and collaboration with the participants (Otado et al., 2015). Results from both Miles et al. and Murrock and Gary demonstrated increases in physical activity supporting the importance of culture in the African American community and the use of culturally specific components in the intervention.

Thompson, Berry, and Hu (2013) also conducted a culturally sensitive intervention with a sample of 41 African American adolescent girls between the ages of 12 and 18 years of age. African American adolescent girls are not the study population for this intervention, but similar to African American women, African American girls engage in lower levels of physical activity when compared to other demographics (DHHS, 2016a; Woolford, Woolford-Hunt, Sami, Blake, & Williams, 2016). Thompson et al. explored the feasibility of a single-group, 12-week church based physical activity intervention. The researchers hypothesized that attitudes about physical activity and perceived expectations of support from others would increase in the girls who completed

intervention. The findings from the study did not show significant changes in increased physical activity participation although positive correlations between family support and physical activity were found (Thompson et al., 2013).

Similar to findings by Thompson et al. (2013), Joseph et al. (2016) also performed a single group, pre/post culturally relevant intervention that consisted of the Internet and moderate to vigorous walking sessions in a sample of 25 African American women. The intervention was conducted to reduce sedentary screen time and to increase moderate to vigorous activity. The Internet sessions included physical activity tracking tools, videos, blogs, and message boards with images of African American women with diverse body types. The findings from the study did not reveal any significant changes in moderate to vigorous physical activity; nevertheless, significant changes in self-regulation for physical activity were found (Joseph et al., 2016)

Thompson et al. (2013) and Joseph et al. (2016) used single-group designs to conduct their interventions. Although significant findings were found in self-regulation for physical activity (Joseph et al., 2016), and positive correlations between family support and physical activity were found (Thompson et al., 2013) to support the current intervention, randomized controlled trials have been identified as the most reliable methodological design to remove extraneous variables in cause and effect relationships (Polit & Beck, 2012). The recommendation for future studies includes the use of randomized controlled trials with a control component that includes a standard intervention.

Physical Activity Engagement

Regular participation in physical activity includes performing bodily movements that increase skeletal muscle work by using more energy than muscles in a resting state

(WHO, 2019a). Physical activity is necessary to lower the risk of chronic disease (Pekmezi et al., 2013). When the age-adjusted rates are compared by race and ethnicity, only 54% of non-Hispanic White adults, 44% non-Hispanic Black adults, and 41% of Hispanic adults met the 2008 physical activity guidelines for aerobic activity (CDC, 2016d). Thirty-six percent of African American women engaged in 150 minutes of weekly physical activity (Whitt-Glover et al., 2012) compared to 51% of their Caucasian counterparts (Blackwell, Lucas, & Clark, 2014).

Increasing physical activity is associated with reducing the risk of chronic disease (CDC, 2015c). Brisk walking is one physical activity method that is both safe and preferred by many people (Miles et al., 2011; WHO, 2018). Several studies (Adams et al., 2015; Miles et al., 2011) have offered interventions aimed at increasing walking. Walking has been identified as the preferred method of physical activity because there is often little or no cost required to engage, nor does the action require any specific skills or training (Miles et al., 2011). In addition to the simplistic action of walking, many benefits are acquired with consistent engagement. For example, walking (a) has a positive effect on the systolic and diastolic components of blood pressure (Lee, Watson, Mulvaney, Tsai, & Lo, 2010), (b) strengthens bones and muscles (National Institute of Diabetes and Digestive and Kidney Diseases, 2014), and (c) improves mood and reduces depressive symptoms (Rimmer et al., 2010; Robertson, Robertson, Jepson, & Maxwell, 2012). Walking is a low impact, low maintenance method that can be used to increase physical activity in African American women.

Although often beneficial, technological advances have resulted in increased reliance on automobiles and have led to lower physical activity engagement (Institute of Medicine of the National Academies, 2012). This dynamic is apparent in the 2.8%

Americans who walked to work in 2008 compared to the 4.1% in 1977. Similar differences were also observed in the 12.5% of children who walked to school in 2001, compared to 20.2% in 1977 (Institute of Medicine of the National Academies, 2012).

Physical activity differences have been identified between genders. Gender differences are a concern particularly for African American women because this group has been identified as the least active demographic in the United States (Joseph et al., 2017). Physical activity differences were also identified among age groups. Twenty-six percent of adults aged 18 to 44 years were physically inactive, 33% were physically inactive in the 45 to 64 year age range, and 40% of adults between 65 and 74 years were inactive (American Heart Association, 2014b). Finally, geographic locations in the United States have also been associated with physical inactivity. Low physical activity participation is greater in the South than in the West, Midwest, and Northeast regions (CDC, 2014). In 2013, adults in Delaware (47%), Virginia (47%), and Alabama (48%) were least likely to exercise for least 30 minutes over 3 days (DHHS, 2017). The reported national average for those engaging in regular exercise is 52% of the adult population (DHHS, 2017).

Increased physical activity in African American women is important to decrease overweight and obesity, two conditions that are direct consequences of low physical activity (CDC, 2015b). Each has been attributed to (a) socioeconomic factors (Lucan, Barg, & Long, 2010; Oh et al., 2010), (b) educational factors, (c) environmental factors (DHHS, 2014), (d) aesthetic factors (Gathers & Mahan, 2014; Hall et al., 2013; Price, Greer, & Tucker, 2013; Versey, 2014), and (e) technological advances (CDC, 2017). Obesity and its consequences were examined by Boggs et al. (2011) in a sample of 51,695 African American women ages 21 to 69 years to determine if a relationship

existed between abdominal obesity and the increased risk of death. Findings indicated that larger waist circumferences and increased BMI were associated with increased risk of death in African American women who never smoked.

Despite the fact that Boggs et al. (2011) showed a higher risk of death with higher waist circumference and body mass index in those who never smoked, smoking was not a variable in the study. The percentage of nonsmoking African American women (CDC, 2018), and the proportion of overweight or obese African American women (CDC, 2016c) are 87% and 82% respectively. Considering the relationship between a larger waist circumference, increased BMI, and the increased risk of death in those who never smoked, the findings from Boggs et al. are important to the intervention. Physical activity engagement has also been identified as a low priority in many African American families (Im et al., 2012). Because of a lack of role modeling behaviors to engage in physical activity (Im et al., 2012), many African American women are not involved in a routine, and they may be more tolerant to larger body sizes than their non-Hispanic White counterparts (Senior, Cason, Martinez-Dawson, Visser, & Dawson, 2015).

Decreased physical activity engagement, lack of role models, and a greater tolerance for larger body sizes in the African American community has the potential to exaggerate the negative health consequences of overweight and obesity. This outlook is sometimes intensified by the low intake of healthy foods and contributes to the chronic disease burden (Senior et al., 2015). An increased tolerance to larger body sizes was examined by Thompson-Brenner et al. (2011) by reviewing trends in the amount of body exposure and the size of figures on the covers of *Ebony* over a span of 40 years. Findings from their study demonstrated the emergence of significant differences in the ratio of full body, partial body, and headshots used on the covers. More than half of the images used

from 1979 to 1988 were headshots compared to only 3% from 1999 to 2008.

Considering most of these images were rated as normal sizes and weight, it may be an indication of a wider range of body size ideals for members of the African American culture (Thompson-Brenner et al., 2011).

The American College of Sports and Medicine recommends moderate intensity exercise to total 150 minutes per week (Garber et al., 2011). This recommendation is particularly important for African American women because of the increased risk of chronic conditions (Buchholz & Artinian, 2009) that result from low energy expenditure and excess caloric intake (Henderson, 2011). Only 17% of non-Hispanic Blacks older than 18 meet the 2008 federal physical activity guidelines (American Heart Association, 2014a). The guidelines included (a) 150 minutes of moderate intensity physical activity (an increased heart rate and an ability to converse with another), (b) 75 minutes of intense vigorous physical activity (an increased heart rate and an inability to converse with another), and/or (c) a combination of moderate and vigorous physical activity. When comparing inactive non-Hispanic Blacks to the overall population, 31% of women were inactive compared to 29% of men (American Heart Association, 2014b).

Barriers to Physical Activity Engagement

Recommendations for physical activity and chronic conditions associated with decreased physical activity are present. However, a wide range of perceptions and barriers to exercise may explain why engagement is lower in African American women. The barriers to physical activity engagement include (a) a lack of childcare, (b) in home and outside work responsibilities, (c) neighborhood safety, (d) familial responsibilities, and (e) hairstyle preservation (Versey, 2014).

African American women often cite a lack of childcare (Gletsu & Tovin, 2010; Hall et al., 2013) as a barrier to physical activity engagement. In 2011, 4 million African American women were identified as the primary person in single-family households (Vespa, Lewis, & Kreider, 2012). In that same year, Vespa et al. (2012) reported that 55% of African American children were more likely to live with one parent than non-Hispanic White children (21%) or Asian children (13%). In addition, many African American women have increased familial caretaking responsibilities of other relations, such as parents, that limit time for physical activity (Gletsu & Tovin, 2010). Often these familial responsibilities and stressors are perceived as greater than those that are encountered by their Caucasian counterparts (Aneshensel, Rutter, & Lachenbruch, 1991), resulting in less time for other activities, such as physical activity (Rashawn, 2014).

A lack of time to engage in physical activity is identified as a barrier to physical activity in African American women. Not engaging in physical activity because of time constraints is attributed to the many responsibilities that African American women encounter. In many cultures and societies, women are considered the primary providers of housework and primary caregivers to family members (Pickard, Inuo, Chadiha, & Johnson, 2011; Rampell, 2013). These caregiver roles minimize the time allowed to engage in physical activity (Gourdine, 2011).

In addition to housework and primary caregiver roles, many women are also employed outside the home. In 2015, 70% of all women with children under the age of 18 worked outside the home (U.S. Department of Labor, 2016b). Working outside the home and maintaining matriarchal responsibility inside the home sometimes leads to role strain and overload leading to negative health consequences (Mailey, Huberty, Dinkel, &

McAuley, 2014). Effective intervention strategies that include scheduling strategies are needed to encourage physical activity engagement (CDC, 2017; Mailey et al., 2014).

Job demands often lead to fatigue and may prevent women from engaging in physical activity. Currently, 60% of African American women are part of the labor force compared to 56% of White, non-Hispanic women (U.S. Department of Labor, 2016a). In 2014, 40% of single, African American women with children under age 18 were heads of their household. In comparison, 15% of single, White, non-Hispanic, women were heads of household (U.S. Department of Labor, 2016a). The demands of the labor force are difficult, yet women often share a disproportionate amount of household responsibilities especially if single and heads of households (Mailey & McAuley, 2014). Each demand may lead to fatigue and reduces time available for physical activity engagement.

Neighborhood safety concerns are another barrier to physical activity in African American women. Neighborhood barriers including aesthetics, unsolicited harassment, and the presence of unleashed dogs may prevent engagement in physical activity. Gallagher et al. (2010) performed a qualitative study using focus groups and photovoice in a sample of 20 African American women over the age of 60 years and found that criminal activity, neighborhood violence, unleashed dogs, and vacant properties were barriers to physical activity engagement. Mama et al. (2015) explored barriers to physical activity by using an ecologic model to perform a qualitative study to acquire information on the collective effects of social, environmental, and individual factors on physical activity engagement in African American and Hispanic women. Mama et al. identified accessibility and safety issues as a concern for African American women in the sample; fear of walking in the neighborhood was identified as a primary barrier to physical activity engagement.

Hoare, Stavreski, Jennings, and Kingwell (2017) explored barriers and motivators to physical activity by performing a secondary analysis of a sample of 894 Australian male and female adults. Participants were categorized as either active or inactive engagers in physical activity. Lack of confidence to participate in physical activity was identified as a barrier within this population. Bandura (1986a) described confidence as a belief or conviction to engage in behavior. Hoare et al. (2017) discovered that lack of confidence was a barrier to physical activity that was not statistically significant. Australian male and female adults are not the study population for this intervention; nevertheless, identifying the lack of confidence as a barrier to physical activity assists with strategies to minimize this behavior in future studies.

Hairstyle preservation, another identified barrier to physical activity, is a tedious and costly process that is required for many African American women (Hall et al., 2013; Im et al., 2012; Price et al., 2013) due to chemically treated and straightened hairstyles (Versey, 2014). Hall et al. (2013) examined the significance of hair preservation in a sample of 103 African American women. It was discovered that 36% of African American women avoided water activities and 29% avoided aerobic activity because of hair preservation (Hall et al., 2013). Joseph, Ainsworth, et al. (2015) discovered that hair maintenance in African American women was a barrier because perspiration can ruin the hairstyle. Each study identified that hair maintenance is a unique barrier to physical activity engagement in African American, supporting the use of cultural strategies, for example, protective hairstyles in the form of braids or twists (Joseph et al., 2018) to increase physical activity engagement.

Ingram et al. (2011) used a qualitative design to explore physical activity barriers in a sample of 51 African American women ages 40 to 65 years. The exploratory focus

group design included four weekly workshops that focused on the benefits, barriers, and reasons for lack of physical activity engagement. Data from the focus groups identified culturally relevant strategies and addressed physical activity barriers. One recommended strategy included the use of support groups and African American female role models (Ingram et al., 2011), thus supporting the implementation of culturally tailored interventions to increase physical activity engagement.

Additional barriers identified in African American women older than 50 years included (a) comorbid health problems (Evans 2011; Ingram et al., 2011), (b) the inconvenience of engaging in physical activity, and (c) the fear of falling (Matthews et al., 2010). Because of these identified barriers, culturally appropriate interventions that include increased knowledge, embracing beliefs while correcting misconceptions, and strategies to incorporate both social facilitation and self-regulatory practices may increase the desire to participate in physical activity by African American women of all ages.

Knowledge and Beliefs About Physical Activity

Informed decision-making processes are needed to produce desired outcomes when engaging in positive health behaviors (Ajzen, Joyce, Sheikh, & Cote, 2011). In contrast, misinformation or being uninformed can lead to lifestyle behaviors that can be harmful or damaging to an individual's health. For example, consistently consuming large amounts of high caloric foods without engaging in physical activity for at least 150 minutes per week can occur due to misinformation or being uninformed. Similarly, consuming large amounts of alcohol or tobacco without knowing or understanding the cancer risks can also be the result of misinformation or being uninformed. A lack of information about an action or experiences is identified as a knowledge deficit.

Acquiring knowledge about harmful behaviors is one way to minimize undesired health

outcomes that often result because of physical inactivity (Ajzen et al., 2011; Hahn & Truman, 2015; Zimmerman, Woolf, & Haley, 2015).

Although knowledge alone rarely changes behavior (Ryan, 2009), there are instances where knowledge and other variables, such as self-regulation and social facilitation, support informed decisions about behaviors. Nevertheless, it is difficult to change negative behaviors if there is no personal or meaningful realization that the behaviors are damaging (Stuart-Shor et al., 2012). African American women have often been unable to achieve and maintain desired health outcomes because of environmental influences (Baruth et al., 2014; Gallagher et al., 2010; Siddiqi, Tiro, & Shuval, 2011) and a lack of knowledge about physical activity. Environmental influences are described as the physical and environmental barriers that decrease physical activity engagement (Baruth et al., 2014). Environmental influences that prevent both achievement and maintenance of the desired health outcome (increased physical activity) may include (a) violent neighborhood dogs (Gallagher et al., 2010), (b) vehicles exceeding the recommended speed levels (Baruth et al., 2014), and (c) fear of being harmed by neighbors (Baruth et al., 2014; Gallagher et al., 2010; Siddiqi et al., 2011).

Perceptions about physical activity are different for different groups of African American women. Some groups are concerned about acquiring injuries while engaging in physical activity (Bowen, Eaves, Vance, & Moneyham, 2015; Evans, 2011; Pekmezi et al., 2013), whereas other groups are concerned with neighborhood safety (Baruth et al., 2014; Siddiqi et al., 2011), and/or maintaining their curvy shapes (Baruth et al., 2014). Additional knowledge is needed for African American women to minimize incorrect perceptions about physical activity and to increase engagement.

Knowledge deficits about physical activity were discovered by Sebastião et al. (2015) when using a mixed method approach to explore physical activity perceptions in a sample of 20 African American women between 60 and 80. Within the groups of regularly active and insufficiently active women, knowledge deficits were found between the terms *exercise* and *physical activity*. Knowledge deficit and uncertainties about the amount and intensity of physical activity needed to produce maximum benefits were also discovered further supporting the exploration of knowledge and physical activity in African American women (Sebastião et al., 2015).

Low physical activity in African American women has also been explored because of the increased incidence of obesity and the growing number of physically inactive African American women. Rimmer et al. (2010) performed a pretest/posttest pilot study that used a telephone intervention with a coaching component to remove physical activity barriers in a sample of 33 obese African American women with disabilities. Motivational interviewing was used as part of this intervention to identify and remove barriers. Results from this study demonstrated that pretest barriers (i.e., the cost of physical activity programs, pain and health concerns, and insufficient transportation) were present at the end of the intervention (Rimmer et al., 2010) despite an increase in walking at pretest (12%) to 64% at posttest. Primary barriers to physical activity were insufficient knowledge about how and where to exercise (Rimmer et al., 2010). A lack of knowledge about how and where to engage in physical activity supports exploring the effect of knowledge about physical activity in African American women.

Low physical activity is also prevalent among adults 18 to 24 years of age. More than two-thirds (69%) do not meet the minimum U.S. physical activity standards (CDC, 2013). At a rural, historically Black college, Kemper and Welsh (2010) found that less

than half of the 106 participants met moderate or vigorous physical activity guidelines. Similar to the study by Sebastião et al. (2015), the participants believed that the benefits of physical activity positively affect health (Kemper & Welsh, 2010).

Although there is some consensus among older and younger African American women about the benefits of physical activity, a lack of knowledge or being uninformed causes some African American women to associate increases in physical activity with bodily harm. Pekmezi et al. (2013) discovered that 20% of African American women between the ages of 35 and 70 believed that physical activity could cause more harm than good. For example, several participants were concerned about acquiring knee injuries or sprained ankles if they engaged in physical activity.

Similarly, Krans and Chang (2012) examined belief systems about physical activity in a purposeful sample of 34 pregnant African American women from low socioeconomic backgrounds. Descriptions about physical activity engagement were varied and included lifting, pushing, pulling, walking, engaging in housework, and caring for children (Krans & Chang, 2012). Bowen et al. (2015) also identified varied meanings about physical activity engagement in a sample of nine African American women 65 years and older. Yard work, which included removing tree limbs, was identified as physical activity. Affuso, Cox, Durant, and Allison (2011) examined the association between beliefs, attitudes, and physical activity in a sample of 297 men and 510 women African Americans. Findings from the study revealed that exercise is important, but women (64%) identified too few places to exercise in the neighborhood when compared to men (54%). Women also identified rest and relaxation was more of a priority when compared to men. Finally, 40% of the sample believed that it was possible to be overweight and in good health (Affuso et al., 2011). Some African American women

associate physical activity engagement with acquiring injuries, bodily harm, and increased pregnancy risks. For example, Krans and Chang (2012) identified that participants in the sample believed that physical activity could lead to miscarriages and increased stress on the fetus, whereas Bowen et al. (2015) found that African American women believed that physical activity engagement might lead to back injuries.

Pekmezi et al. (2013) also identified misconceptions about and not learning how to engage in physical activity as barriers. Similar to Im et al. (2012), Pekmezi et al. discovered that African American women lacked knowledge about physical activity because of a lack of past engagement. Many families in the African American community never participate in physical activity because it has never been learned. They never learned about physical activity because it was never perceived as a priority, and there were never enough economic resources to join athletic facilities (Im et al., 2012).

Because of low physical activity maintenance in African American women, and because many within this subpopulation never learned about physical activity, interventions that include knowledge about physical activity and its benefits may help with behavior modification. Scarinci et al. (2014) examined physical activity and healthy eating behaviors to decrease chronic disease risk in a sample of 565 African American women. The 5-week intervention with 12- and 24-month follow-up periods demonstrated an increase in fruit and vegetable consumption and decreased consumption of fried foods. Physical activity engagement was not maintained, thus demonstrating a need for additional knowledge to provide an understanding of the benefits of physical activity (Scarinci et al., 2014).

Although physical activity can lead to physiological and psychological health, there remain groups of women in the African American community who are uninformed

about the benefits of maintaining physical activity. An increase in knowledge about the benefits of physical activity is needed for African American women to dispel some of the misconceptions that currently exist. Providing information about the benefits of physical activity is essential to preventing overweight and obesity in African American women (Association of Black Psychologists and American Psychological Association, 2014).

Knowledge and Beliefs About Physical Activity in Other Communities

Knowledge deficits about physical activity have been identified in other communities. Similar to guidelines provided by the American College of Sports and Medicine (Garber et al., 2011), the Australian Department of Health has also provided recommendations for Australian adults 18 to 64 years of age. These guidelines include 150 minutes of moderate intensity physical activity and 75 minutes of vigorous intensity physical activity per week (Brown, Bauman, Bull, & Burton, 2013). Although guidelines are available, the health benefits of physical activity do not always influence behavior. Fredriksson et al. (2018) examined four different physical activity knowledge levels and physical activity behavior in a sample of 615 Australian adults. Findings from this study revealed significant relationships between the knowledge of disease risk and physical activity, and underestimated physical activity and disease risk (Fredriksson et al., 2018). There was no significant relationship between the amount of physical activity needed for health and physical activity behavior. There were also no significant relationships between the risks and benefits of physical activity and behavior (Fredriksson et al., 2018).

Similar to Fredriksson et al. (2018), Knox, Esliger, Biddle, and Sherar (2013) performed a descriptive cross-sectional study with a sample of 4,657 participants in the United Kingdom that compared physical activity guidelines from two separate years. Participants were asked about physical activity guidelines for both years. Eleven percent

of the participants from the first year (2007) and 18% of the participants from the second year (2013) followed the correct moderate to vigorous physical activity guidelines.

Although the present study does not include participants from either Australia or the United Kingdom, the findings from Fredriksson et al. (2018) and Knox et al. (2013) may provide information about different approaches to assist with physical activity behavior change and the retention of knowledge about moderate and vigorous physical activity.

Self-Regulation and Physical Activity Engagement

Self-regulation has been used with a variety of other variables and theories to examine its effect on physical activity in African American women. Self-regulation is defined as goals, strategies, and emotional management and self-evaluative techniques that are incorporated into routines to change behavior (Ryan, 2009). Goal setting is an effective strategy to increase physical activity that requires specific goals and self-monitoring behaviors to achieve goal attainment (Nothwehr & Yang, 2006; Ries et al., 2014). With specific, attainable goals in place, performing or completing the intended behavior is usually greater (Artinian et al., 2010). Goal setting is an essential part of the self-regulatory process to increase physical activity. Goal setting helps motivate participants to complete the intended behavior. Goal setting may also contribute to sustained increases in physical activity because of improved self-regulation and monitoring (Van Camp & Hayes, 2012).

Ries et al. (2014) found a mediating effect on physical activity by goal related change progressions in a 6-month intervention that consisted of physical activity, weight management, and jobs skill classes in a sample of 485 low-income minority women. The purpose of the intervention was to determine if differences existed between goal and goal-related strategies in both the intervention ($n = 207$) and control ($n = 288$) groups.

The results of the study included healthier diet goals, increases in physical activity, greater participation in the intervention group when compared to the control group, and greater physical activity among those in the maintenance phase. A mediating effect was found between physical activity and goal related changes; thus, supporting the use of self-directed and self-regulatory practices (Ries et al., 2014).

Self-monitoring may also help to increase physical activity. Self-monitoring involves regulating behavior by increasing one's awareness and identifying cues that are barriers to change (Artinian et al., 2010). When self-monitoring is used, the individual can recognize and remove the barrier to complete the intended behavior. The Shape program, which included physical activity and weight management, was an 18-month randomized controlled trial to prevent weight gain in African American women in a primary care setting (Bennett et al., 2013; Foley et al., 2012). Researchers focused on strategies to maintain weight (less body dissatisfaction and greater body acceptance) in women with BMI ≤ 35 (Foley et al., 2012). This intervention included the change goals, self-monitoring, counseling sessions, and gym memberships. The sample included 185 premenopausal African American women. Fifty-three percent of the intervention participants were at or below baseline BMI at the end of the intervention compared to 39% in the control group, demonstrating the positive effect of self-monitoring and goal setting on physical activity and weight management (Bennett et al., 2013).

Rodriguez, Christopher, Johnson, Wang, and Foody (2012) explored the reduction of cardiovascular risk factors in a sample of 34 overweight African American women through healthy nutrition choices, increased physical activity, and a self-help component that included support and discussion, to assist with consistency of the dietary and activity regimen. The 12-week pilot was a single group study design with anthropometric

readings at baseline, 6 weeks, and 12 weeks. Statistically significant findings from baseline to 12 weeks were (a) BMIs reduced from 34.3 to 32.5, (b) waist circumference reduced from 42.5 inches to 38.7 inches, and (c) body weight reduced from 208.2 pounds to 204.3 pounds. A secondary analysis of those who completed the 12-week measurements included (a) reductions in systolic blood pressures by 8 mmHg, (b) BMI reductions by 1.3 points, (c) 5-inch waist reductions, and (d) unchanged obesity prevalence (Rodriguez et al., 2012). The results also support self-directed and self-regulatory processes by developing workout regimens specific to each participant.

Physical activity in African American women has also been approached from a qualitative perspective using grounded theory. Harley et al. (2014) investigated 14 African American women from low socioeconomic backgrounds to determine the motivation for maintaining daily physical activity regimens. Three themes emerged: (a) motivation for maintaining active lifestyles, (b) strategies for planning physical activity, and (c) challenges to maintaining physical activity. Social connections and social support was a subtheme that emerged demonstrating the importance of self-regulation to physical activity initiation and maintenance.

Similar to Miles et al. (2011), Adams et al. (2015) also identified walking as a preferred method of physical activity. Adams et al. implemented a community-based 5-week pretest/posttest walking intervention at a southeastern U.S. church to promote physical activity in a sample of 29 African American women ages 35 to 69. Weekly group sessions were a part of the intervention. Two groups, one with established walking times and the other with flexible walking times, demonstrated differences from pre- to post-intervention. Post intervention results for weekday sitting times in minutes decreased from an average of 474.50 to 363.33, and moderate physical activity minutes

increased from an average of 93.50 to 99.23. The percentage of those who did not walk decreased from pre-intervention (17%) to post-intervention (7%). Decreases also occurred in those who walked every day in the pre-intervention group (28%) to 24% at post-intervention. The results of the study support the use of self-directed, self-regulatory practices to increase physical activity (Adams et al., 2015).

In the Miles et al. (2011) and Adams et al. (2015) studies, walking increased in both intervention groups. Although anthropometric differences were not provided for either of the interventions, increased physical activity was associated with decreased risk of premature death, coronary disease, hypertension, stroke, type 2 diabetes, depression, and breast and colon cancers (Durstine, Gordon, Wang, & Luo, 2013). Engaging in consistent physical activity may be more likely if there are specific goals and strategies to facilitate behavioral changes (Artinian et al., 2010).

In addition to specific goals, efficacy beliefs and the ability to guide one's own actions (self-regulation) are important to the behavioral change process. Each is often significant to the initiation and maintenance of the intended behavior (Mailey & McAuley, 2014). Finally, proximal or distal goals are needed. Realistic and attainable proximal goals are often associated with successful outcomes (Artinian et al., 2010).

Self-Efficacy Beliefs and Physical Activity Engagement

Self-efficacy is individuals' belief in their ability to organize and complete different courses of action to complete a task successfully (Bandura, 1986b).

Organization and planning are required to engage in physical activity. Self-efficacy is important to life and human functioning and may potentially motivate or change behavior (Bandura, 1977). Changes in behavior occur when individuals have the conviction to complete the behavior in regular and challenging conditions (Artino, 2012).

Perceived self-efficacy has the potential to influence settings where the behaviors may occur. Individuals are often intimidated by, and avoid, situations that are threatening and may lead to ineffective coping (Bandura, 1977). In contrast, activities that encourage self-assurance may involve an increase in the frequency of the behavior. Perceived self-efficacy is important to physical activity engagement because it affects efficacy expectations (the amount of time and effort that will be put into the behavior). The greater an individual's self-efficacy, the more effort will be directed toward the behavior (Bandura, 1977). Self-efficacy has the potential to change behavior; therefore, increasing self-efficacy in African American women may increase physical activity.

Social Facilitation and Physical Activity Engagement

Social facilitation consists of the support persons who assist with improving healthy behaviors (Ryan, 2009), including friends, family members, and spouses. Social facilitation is significant for the African American woman because of the sense of empowerment that this population receives from their social network (Henderson, 2011). Many African American women assume supportive roles (Gletsu & Tovin, 2010) in their individual family structures, placing the needs of their families over their own individual needs (Pekmezi et al., 2013). Consequently, physical activity engagement is disregarded. Because African American women often assume a subordinate position within their immediate family, the study included either a support or physical activity companion (social facilitation) to assist with increasing physical activity.

Several studies have examined social facilitation and found it to be both a barrier (Jones & Paxton, 2015) and enabler (Shuval et al., 2013) to physical activity engagement in African American women. Alvarado et al. (2013) described social facilitation as peer encouragement. Social support was described as a motivator in a sample of 17 Afro-

Caribbean women; yet, many women, because of personal reasons, did not trust one another or maintain many female friends. The lack of maintaining personal relationships eliminated the necessary assistance needed to increase physical activity by working with a partner. Nevertheless, one participant in the same study identified social support as a motivator that facilitated maintaining physical activity engagement (Alvarado et al., 2013). The findings from this study support the use of a support person to engage in physical activity by a segment of the sample.

Likewise, Huebschmann et al. (2015) examined social support in a sample of 51 African American women during a 10-week mixed methods study designed to determine barriers (previously identified) and facilitators to physical activity. A facilitator to physical activity included social support from both family and friends. Encouragement from sources of social support was identified as a motivator to increase physical activity.

In contrast, low levels of social support are often cited as a reason for low physical activity engagement. Pekmezi et al. (2016) found low levels of social support in a 12-month computer-based, physical activity intervention to reduce the risk of cancer in 84 African American women. Evans (2011) examined the behaviors and beliefs about physical activity in 20 African American women and discovered that external barriers, such as the lack of a partner, could prevent physical activity engagement. Participants in the intervention preferred a walking partner to engaging in physical activity alone. The lack of a walking partner was considered a barrier to engaging in physical activity (Evans, 2011) and having a support person increased physical activity (Cho et al., 2013; Hindle & Carpenter, 2011). Because limited social support or the lack of a support person prevented engagement in physical activity, this intervention proposed to use support to increase physical activity in African American women.

Social support in the form of telephone support has also been explored. To determine if a brief intervention was effective at increasing physical activity in 141 working mothers, Mailey and McAuley (2014) performed a randomized controlled trial. The purpose was to determine if physical activity and self-regulation would increase by completing an intervention (intervention only group) or completing the intervention with telephone support. There was also a waitlist control group. Results from this study demonstrated larger increases in physical activity in the intervention groups compared to the control group immediately following the intervention. Six month follow-up physical activity scores for the intervention groups were at baseline, and goal setting and planning were unchanged in the control group (Mailey & McAuley, 2014). It was determined that follow-up telephone support assisted in maintaining a physical activity regimen in a sample of working mothers further supporting the use of social support as a predictor of increased self-reported physical activity in African American women.

The Healthy People 2020 objectives support the use of social facilitation in the form of technology supported components and interventions, such as coaches and counselors (DHHS, 2014). Social facilitation was examined by Joseph, Keller, et al. (2015) using an electronic medium in a randomized pilot that evaluated culturally appropriate interventions in a sample of 29 African American women. The 8-week pilot study consisted of randomization to either an electronic (using Facebook and text messaging media formats) or print intervention (American Heart Association physical activity promotion brochures). Participants in both groups were provided pedometers and maintained calendars to track their daily steps (Joseph, Keller, et al., 2015). Participants in the electronic intervention reduced sedentary behaviors by 71 minutes per week, while women in the print group increased sedentary behaviors by 118 minutes per week

(Joseph, Keller, et al., 2015). Moderate lifestyle intensity in the electronic intervention increased by 27 minutes per week while the print group decreased by 35 minutes per week. Decreased sedentary behaviors and increases in light and moderate physical activity in the electronic group provided evidence for the feasibility and acceptability of using culturally appropriate interventions and social facilitation to increase physical activity in African American women (Joseph, Keller, et al., 2015).

Summary

As identified by the 2008 guidelines of the American College of Sports and Medicine, all adults should engage in moderate exercise sessions at least 150 minutes weekly (Garber et al., 2011). Despite the national recommendations, only 36% of African American women met the national guideline parameters (Joseph, Ainsworth, et al., 2015). In the African American female community, the barriers to physical activity engagement are varied. African American women often encounter challenges that prevent engagement in a consistent physical activity regimen. Culturally sensitive interventions that embrace African American females' customs and values are necessary to facilitate physical activity engagement (Joseph, Keller, et al., 2015).

Factors that affect the African American female population's ability to engage in physical activity require exploration. African American women's knowledge about physical activity engagement requires exploration because of various examples of misinformation. Examples of misinformation about physical activity engagement include (a) the recommended amount and intensity of physical activity (Sebastião et al., 2015), (b) types of physical activity engagement (Krans & Chang, 2012), and (c) the ability of physical activity to cause bodily harm (Pekmezi et al., 2013).

Self-regulation, the goals and strategies necessary to change behavior, requires exploration to determine its potential to increase physical activity engagement (Van Camp & Hayes, 2012). Finally, social facilitation, the influence of support persons, may help to increase physical activity engagement (Pender et al., 2011; Ryan, 2009). Support persons are important to African American women because of their obligations to their families (Gletsu & Tovin, 2010) and the sense of empowerment received from their individual social networks (Henderson, 2011).

The study is grounded in the theoretical constructs of the ITHBC. The ITHBC assumes that health behavior change and the management of chronic conditions is a dynamic process that requires desire, motivation, and self-reflection to change behaviors. Each component of ITHBC (knowledge and beliefs, self-regulation, and social facilitation) may be important in helping increase physical activity in African American women. Because of the barriers this population faces, the ITHBC can be used to frame this intervention.

CHAPTER III

METHODOLOGY

The goal of this pilot study was to increase physical activity in African American women using a culturally sensitive intervention that addresses knowledge and beliefs about physical activity, social facilitation, and self-regulation. This chapter contains a description of the methodology selected to conduct the study, the setting, sample, the intervention, instruments, and data collection and analysis procedures. The chapter also contains a description of the ethical procedures that were used to guarantee the confidentiality and safety of the participants.

Research Design

A two-group pretest/posttest, quasi-experimental design with randomization by church affiliation was used to conduct a pilot study using a 6-week culturally sensitive intervention. In this study, African American women's knowledge and beliefs about physical activity and their levels of self-regulation and social facilitation were quantified in order to test differences between the intervention and treatment groups at baseline and 2 weeks after the intervention ends. Actual physical activity participation was not assessed in this study. Only increased or decreased physical activity as determined by the physical activity assessments was measured.

Quasi-experimental research is a study design that involves an intervention without randomization (Polit & Beck, 2017). The quasi-experimental research design is used in the social sciences and psychology as a useful method to measure social variables

(Shuttleworth, 2008). Although a true experimental design randomly assigns participants to control and treatment groups, randomization of groups is often inconvenient, difficult, or illegal (Brewer & Kuhn, 2010). One disadvantage to a quasi-experimental design is that some factors cannot be controlled; however, as long as limitations to the study are noted, the results can provide significant findings when true experiments are not possible. The results found using quasi-experimental research could be used to support testable hypotheses (Gay & Airasian, 2000). Although not as powerful as experimental designs, the quasi-experimental design is a common design in social science studies.

Setting

The setting for the pilot intervention was two African American Baptist churches and their associated community centers in a metropolitan area of a major city in the southeastern United States. The African American Baptist church is a trusted source of influence that offers guidance in the African American community (Aycock, Kirkendoll, & Gordon, 2013; Stennis, Purnell, Perkins, & Fischle, 2015). The intervention setting was a church with approximately 1,000 members, 70% of those members are African American and female. The control setting was a church with approximately 800 members, 63% of those members are African American and female. To control for contamination between the intervention and control groups, the two churches were chosen in part for being geographically 10 miles apart. The churches provided permission to conduct the study (see Appendix A).

Sample

The nonrandom sample consisted of 37 African American women who met the study criteria. Thirty-seven is an appropriate sample size for a pilot study in which groups are compared (Melnik & Morrison-Beedy, 2012). Inclusion criteria were women

(a) between 20 and 70 years of age, (b) who self-identified as African American and female, (c) who were members in either church, (d) who had weekly access to a landline or cellular telephone with text capability, and/or an active email account, and e) spoke English. Permission from personal physicians was not required to participate in the study. Exclusion criteria included individuals (a) less than 20 years of age and greater than 70 years of age, (b) had an illness or disability that interfered with physical activity, (c) non-African American, (d) male, and (e) non-English speaking.

Overview of the GET FIT DON'T QUIT Intervention

The intervention, designed by the researcher, consisted of four, 1-hour weekly sessions that included information sharing and discussion about physical activity knowledge and beliefs, self-regulation, and social facilitation (see Appendix B). Sessions 1 and 3 included 1 hour of teaching. Sessions 2 and 4 included two 30-minute roundtable discussions to include storytelling in addition to the teaching component (one 30-minute session facilitated by the primary investigator and one 30-minute discussion for each class) for the participants to discuss any challenges encountered when trying to fit increased physical activity into their daily regimens.

During the first week of the intervention, each participant in the treatment group selected a buddy from the treatment group, a family member, or friend as a source of support. The treatment group received one email reminder from the primary investigator each week about ways to increase physical activity. All sessions were supplemented with handouts on ways to increase moderate physical activity. After the four weekly sessions were complete, participants were asked to return 2 weeks after the 4-week sessions (6 weeks) to complete the post-intervention questionnaires. The time for the post-intervention session was 2 hours for a total of 6 hours for the entire intervention.

Pre- and posttest assessments were completed by participants in the control group. Each testing session lasted for an hour, for a total of 2 hours. In addition to the pre- and posttest assessments, participants assigned to the control group received four weekly fact sheets (see Appendix J) via email or USPS mail produced by the Office of Women's Health (DHHS, 2018). The fact sheets were free of copyright restrictions and could be reproduced without permission.

Each week, participants in the control group received information about general health and wellness topics. During Week 1, participants received via email or USPS mail a fact sheet entitled *Healthy Weight and Women*. This sheet provided information about the effects of healthy weight and variables that can lead to weight gain. During Week 2, participants received a fact sheet entitled *Heart Disease and Women*. This sheet provided information on identifying the signs of a heart attack and heart disease risks in women. During Week 3, participants in the control group received a fact sheet entitled *Stroke and Women*. This fact sheet provided information about the signs and symptoms of a stroke and stroke risk factors unique to women. Finally, during Week 4, participants received a fact sheet entitled *Heart Healthy Eating*. This fact sheet provided information about the types of food to avoid and the types and amount of foods that promote heart health.

Baseline Measures

Baseline data (age, height, and weight) were collected during the first session from both intervention and control participants. Pre-intervention questionnaires were completed at the first session. Participants were asked to arrive 40 minutes prior to the 1-hour session to provide baseline data and complete the pre-intervention questionnaires.

Instruments

Instruments were distributed and collected by the primary investigator, a registered nurse, during the pre-intervention phase and 2-weeks post-intervention. Six measurement tools were used to collect data about the variables of interest. The following section describes each of the instruments.

Knowledge of Physical Activity Questionnaire

The Knowledge of Physical Activity Questionnaire (see Appendix C) is a 20-item measure with three subscales (physical activity guidelines, traditional physical activities, and lifestyle physical activities). Six items on the scale relate to exercise participation, eight items relate to traditional physical activity, and six items relate to lifestyle physical activity. The measure was developed by Morrow, Krzewinski-Malone, Jackson, Bungum, and FitzGerald (2004) to determine if knowledge about traditional and lifestyle physical activity were enough to achieve health benefits based on the CDC and the American College of Sports Medicine guidelines. The representative sample of 2,002 adults (73% Caucasian, 9% African American, 7% Hispanic, 2% Asian American, and 8% not identified) was acquired from random digit telephone dialing.

A score of 1 was provided for a correct response, 0 was provided for an incorrect response, or *I do not know* response (Morrow et al., 2004). A total score was calculated among the items and the three subscales (physical activity guidelines, traditional physical activity, and lifestyle physical activity) to determine if physical activity was sufficient to receive a health benefit. Participants' physical activity levels were determined as adequate or inadequate for a health benefit by calculating point-biserial correlations between the amount of activity, the scores on the three subscales (physical activity guidelines, traditional physical activity, and lifestyle activities), and the total score

(Morrow et al., 2004). Kuder Richardson internal consistency reliability for the 20 items was 0.59. Item and total score correlations indicated that all items correlated positively with the total scale (seven items were less than 0.20 and two were less than 0.70).

Content validity was established by three expert content reviewers.

Physical Activity Appraisal Inventory (PAAI)

The PAAI is a 13-item scale that asks participants to rate their level of confidence in their ability to engage in home, work, and leisure physical activity (see Appendix D). Response options for the PAAI range from 0 (*cannot do at all*) to 100 (*certain can do*). Scores on each activity are averaged to provide a total score ranging from 0 to 100. Higher scores indicate higher self-efficacy for engaging in physical activity (Haas & Northam, 2010). Confidence is described as a measure of an individual's perception of her own belief in her abilities (Perry, 2011). Furthermore, Bandura (1986a) has described self-confidence as a belief or a conviction to engage in a behavior.

An initial pilot study was conducted on the instrument in a sample of 219 women from the community (Haas & Northam, 2010). Cronbach's alpha for the scale was .95. A principal component analysis identified a single factor scale. Factor loadings of the 13 items ranged from .75 to .83. Item to total correlations ranged from 0.70 to 0.79. Inter-item correlations ranged from 0.39 to 0.80. A Spearman's correlation ($r = 0.54$) indicated that the PAAI has convergent validity with the Self-Efficacy for Exercise Scale (Marcus, Shelby, Niaura, & Rossi, 1992).

A second study conducted on the PAAI included a sample of 128 women, 73 with breast cancer, 55 without breast cancer (Haas & Northam, 2010). Self-efficacy for physical activity was measured using the PAAI and physical activity was measured using the self-report Human Activity Profile (Fix & Daughton, 1988). Two scores were

produced from the HAP: the maximum activity score and the adjusted activity score. Convergent validity was established by a correlation ($r = 0.83$) between the maximum activity score and maximum oxygen consumption. The adjusted activity score correlated with forced expiratory volume in 1 second. Test-retest reliability coefficients for the maximum activity score and the adjusted activity score were 0.84 and 0.79 respectively. Significant differences in self-efficacy scores were identified between women in the treatment and comparison groups. Cronbach's alpha of the PAAI ranged from .94 in the comparison group to .96 in the treatment group.

The Social Support for Exercise Scale

The Social Support for Exercise Scale is a 10-item self-report instrument that measures behaviors and attitudes of family and friends toward the participant's participation in physical activity. In this study, the measure was adapted to measure physical activity. Participants are asked, for example, how often family and friends *offered to engage in physical activity with me* during the past 3 months (Sallis, Grossman, Pinski, Patterson, & Nader, 1987). The instrument uses a 5-point Likert scale that ranges from 1 (*none*) to 5 (*very often*). Scores on the individual items are averaged for a total score with a possible total score range from 1 to 5. The questionnaire contains three items that make up a family rewards and punishment scale that was not used in the study. The family and friends' participation scores are obtained by averaging responses to the remaining 10 items (see Appendix E). Higher scores indicate greater social supports (Sallis et al., 1987).

An initial study was conducted on the instrument using a sample of eight male and 32 female participants to identify diet and exercise habits through personal interviews (Sallis et al., 1987). Interview responses provided data about social support for diet and

behaviors. A second study was conducted using 171 undergraduate college students and faculty. A subsample of 52 students were re-administered the social support scales 1 to 2 weeks later. Two social support scales (one for eating habits and one for exercise habits) were developed for participants to rate the frequency both family (defined as members of the household) and friends (defined as acquaintances or coworkers) performed or discussed the item during the previous 3 months. Test-retest reliabilities ranged from .55 to .86 Cronbach's alpha was used to measure internal consistency of each factor. The alpha coefficients ranged from .61 to .91.

Concurrent criterion-related validity was assessed by correlating the social support factor scores with the appropriate diet and exercise measures. The exercising together factor of the friend support for exercise scale correlated significantly ($r = 0.46$) with the vigorous exercise measure; both were factors of the family support for exercise scale (Sallis et al., 1987). Construct validity was assessed with the quality or quantity indices of Sarason's Social Support Questionnaire. Neither the social support for exercise factors nor social support for eating factors correlated significantly with Sarason's questionnaire (Sallis et al., 1987).

The Short Self-Regulation Questionnaire (SSRQ)

Self-regulation was measured using the SSRQ (see Appendix F). The SSRQ is a 31-item instrument derived from the Self-Regulation Questionnaire (Brown, Miller, & Lawendowski, 1999), a measure that was originally used with persons with addictive behaviors. In the present study, the measure was used to measure physical activity. Although the instrument was developed for use in those with addictive behaviors, none of the questions are specific to substance use. The questions are about the process of change and the disruptions in the process of evaluating information, deciding to change,

developing a plan, implementing it, and evaluating the plan. Sample items from the scale include *I usually keep track of my progress toward my goals*, and *Once I have a goal, I usually plan how to reach it* (Miller & Brown, 1991).

The instrument uses a 5-point Likert scale that ranges from 1 (*strongly disagree*) to 5 (*strongly agree*). Scores on individual items are averaged for a total score ranging from 1 to 5. The SSRQ was developed to measure self-regulation across the seven processes of self-regulation (receiving information, evaluating, triggering, searching, formulating, implementing, and assessing).

An initial study was conducted on the instrument using a sample of 377 undergraduate students from two consecutive semesters that was predominantly female (55%; Carey, Neal, & Collins, 2004). Cronbach's alpha for the scale was .92. Principal factor analysis found a single factor. Thirty-one items loaded on the single factor and accounted for 43% of the variance. Item correlations ranged from 0.42 to 0.72. Inter-item correlations ranged from 0.38 to 0.69. The correlation between the SRQ and the SSRQ was $r = .96$ (Carey et al., 2004).

The SSRQ total score was compared across seven demographics (semester, age, gender, class classification, ethnicity, residence, and Greek affiliation). Significant differences emerged between the fall and spring semester participants (Carey et al., 2004). The Marlow Crown Desirability Scale (Crowne & Marlow, 1964), a 13-item measure that assesses social desirability, was only given to the fall participants. Social desirability significantly correlated ($r = 0.47$) with scores on the SSRQ for the fall participants (Carey et al., 2004).

A second study conducted on the SSRQ included a sample of 188 undergraduate college students (Neal & Carey, 2005). A principal factor analysis found a two-factor

model. The factors, impulse control and goal setting, correlated with each other ($r = 0.63$), and accounted for 70% and 17% of the variance, respectively. Item correlations for the impulse control factor ranged from 0.50 to 0.76 (Zijlmans, Tijmstra, Andries van der Ark, & Sijtsma, 2018). Cronbach's alpha for impulse control was .84 (Neal & Carey, 2005). Item test correlations for the goal setting factor was 0.50 to 0.79, and item test correlations were 0.38 to 0.71. Cronbach's alpha for goal setting was .86. Subscales were created for the two factors SSRQ-IC and the SSRQ-GS. The SSRQ correlated with the SSRQ-IC ($r = 0.89$) and the SSRQ-GS ($r = 0.82$). Neal and Carey (2005) found a moderate correlation between the two scales ($r = 0.55$).

Godin-Shephard Leisure Time Physical Activity Questionnaire

The Godin-Shephard Leisure Time Physical Activity Questionnaire was developed as a simple method to measure physical activity during leisure time (see Appendix G). The measure is a 2-item questionnaire. The first question asks participants to report exercise for 15 minutes or more at strenuous, moderate, and mild intensities during a 7-day period (Godin & Shephard, 1985). Scoring includes multiplying the number of reported times for the different intensities by certain metabolic equivalents of 9 (*strenuous*), 5 (*moderate*), and 3 (*mild*). A metabolic equivalent is defined as the amount of oxygen that is consumed while sitting in a resting state (Jette, Sidney, & Blumchen, 1990). These values are then summed for an overall score that ranges between 0 and 119. Higher scores reflect a greater volume of physical activity participation. The score obtained from the moderate and strenuous categories can also be used to classify participants as active or insufficiently active as determined by the physical activity guidelines (Amireault, Godin, Lacombe, & Sebastian, 2015).

The second question asks about the frequency of physical activity in a 7-day period to work up a sweat. Response options to Question 2 include (1) *never/rarely*, (2) *sometimes*, and (3) *often*. The response is used to determine how frequent effort is used (working up a sweat) when engaging in physical activity. In a sample of 306 healthy adults for a fitness evaluation grouped by body fat and maximum oxygen intake, Pearson correlation coefficients between leisure activity and objective physical conditions for strenuous exercise were 0.21 for body fat and 0.38 for maximum oxygen intake (Godin & Shephard, 1985). In a separate sample of 53 participants, Godin and Shephard (1985) found 2-week test-retest reliability coefficients for (a) light exercise (.48), (b) moderate exercise (.46), (c) strenuous exercise (.94), and (d) sweating exercise (.80).

Self-Efficacy for Exercise Scale (SEE)

The SEE is a self-report 9-item scale (see Appendix H) used to measure the individual confidence that a woman has in her own ability to engage in physical activity despite perceived barriers (Resnick & Jenkins, 2000). In the present study, the measure was adapted to measure physical activity. Sample items from the scale address how confident a participant feels that exercise could be performed if (a) the weather was bothersome, (b) exercise had to occur alone, (c) exercise was not enjoyed, and (d) the participant felt stressed (Resnick & Jenkins, 2000). The scale, which uses an 11-point Likert scale that ranges from 0 (*not confident*) to 10 (*very confident*), is scored by averaging the participants' numerical ratings. The total score ranges from 0 to 10. Higher scores indicating greater self-efficacy for exercise (Resnick & Jenkins, 2000).

Resnick and Jenkins (2000) conducted an initial study on the instrument in a sample of 187 older adults ($M = 85$, $SD = 6.2$) from a continuing care retirement community. Internal consistency of the SEE scale was .92. Construct validity of the SEE

was tested using two hypotheses: participants with better health have greater self-efficacy expectations and participants with greater mental health have greater self-efficacy expectations (Resnick & Jenkins, 2000). The scale was found to identify adults with low self-efficacy expectations. Resnick and Jenkins reported sufficient evidence of the validity of the SEE scale using both construct- and criterion-related validity.

Procedures

The participants were assigned by church affiliation to either the intervention or the control group. Data were collected from both groups before the intervention began and 2 weeks after the sessions ended. The instruments were administered in person by the researcher, a female African American registered nurse, trained in culturally sensitive and diversity interviewing techniques. The same intervention provided to the treatment group was offered to the control group 2 weeks after the study was completed.

Participants for the study were recruited 4 weeks prior to the intervention from the two study churches and the community centers that are a part of the churches. The investigator met with the church pastors at both study sites to determine appropriate recruiting times. Scripted information was provided to the church staff detailing the study information (see Appendix I). The investigator attended all services and events for two consecutive weeks at each church. The 4-week period was allotted prior to the beginning of the intervention to prevent church service and event overlap times. Flyers detailing the study were posted in the church bulletin, in the church and community centers, and on cars in the church parking lots (see Appendix K). The investigator role-played the recruiting process prior to the intervention to ensure consistency of delivery.

Data Analysis

Data collected from the two groups were entered into a spreadsheet and uploaded to SPSS software for analysis. Because five participants did not complete the intervention, intention-to-treat analyses were conducted using last observation carried forward as a method to replace missing post-intervention data, as suggested by White, Horton, Carpenter, and Pocock (2011). Analyses of the research questions using all 42 cases showed no differences in the results when only using the 37 women who completed the post-intervention instruments. Therefore, the 37 women who provided both pre-intervention and post-intervention data were used in the analyses of the research questions. One significant deviation from the analysis of 37 cases and the 42 cases is noted in Research Question 7.

The study employed a two-group pretest/posttest, quasi-experimental design. This specific form of design was chosen because although an intervention was used, the design lacked individual randomization. Seven research questions were studied:

- RQ1: Is there a significant increase in knowledge about physical activity at 6 weeks for African American women in the treatment group compared with the control group, after controlling for pre-intervention differences?
- RQ2: Is there a significant increase in level of confidence to engage in physical activity at 6 weeks for African American women in the treatment group compared with the control group, after controlling for pre-intervention differences?
- RQ3: Is there a significant increase in physical activity at 6 weeks for African American women in the treatment group compared with the control group, after controlling for pre-intervention differences?

- RQ4: Is there a significant increase in perceptions of social facilitation of physical activity at 6 weeks for African American women in the treatment group compared with the control group, after controlling for pre-intervention differences?
- RQ5: Is there a significant increase in perceived self-regulation of physical activity at 6 weeks for African American women in the treatment group compared with the control group, after controlling for pre-intervention differences?
- RQ6: Is there a significant increase in perceived self-efficacy for engaging in physical activity at 6 weeks for African American women in the treatment group compared with the control group, after controlling for pre-intervention differences?
- RQ7: Are there significant relationships among physical activity, knowledge about physical activity, self-regulation, perceptions of social facilitation of physical activity, self-regulation of physical activity, and self-efficacy for engaging in physical activity in African American women who completed a culturally sensitive intervention?

The first six research questions were analyzed using analyses of covariance.

Analyses of covariance, either ANCOVA or MANCOVA, were selected to analyze the data because these procedures test for significant differences between two group means on univariate or multivariate dependent variables, after controlling for pre-intervention differences. The independent variable was type of group (control or intervention) and the dependent variables were post-intervention scores on knowledge about physical activity (three scales), level of confidence to engage in physical activity (two scales), physical

activity (two scales), perceptions of social facilitation of physical activity (one scale), perceived self-regulation of physical activity (one scale), and self-efficacy for engaging in physical activity (one scale). The covariates were the pre-intervention scores on knowledge about physical activity (three scales), level of confidence to engage in physical activity (two scales), physical activity (two scales), perceptions of social facilitation of physical activity (one scale), perceived self-regulation of physical activity (one scale), and self-efficacy for engaging in physical activity (one scale). Six separate analyses of covariance were conducted to measure the differences at 6 weeks between the two groups of African American women on the scales of each dependent variable, after controlling for pre-intervention differences. The final research question was analyzed using correlation to show the relationships among the variables of interest for African American women who completed a culturally sensitive intervention.

Protection of Human Subjects

Approval for the study was obtained from the Institutional Review Board at Georgia State University. Prior to the collection of all baseline data, written informed consent (see Appendix L) was obtained from the participants. All participants were informed of their right to confidentiality and to voluntary participation without coercion. Each participant was notified of her right to withdraw from the study at any time without penalty. All identifying information and signed consent forms are in a locked box separate from the coded questionnaires. Both locked boxes will be maintained in a locked cabinet in the investigator's office for 10 years after which all documents will be shredded. Data collected from the questionnaires was entered into a computer and protected with a username and password known only to the investigator.

CHAPTER IV

RESULTS

This chapter contains a description of the control and treatment group participants. This section also contains a description of the reliability of the scales used to quantify African American women's knowledge and beliefs about physical activity and their levels of self-regulation and social facilitation. The results of the analysis of seven research questions are presented.

Description of the Sample

Forty-nine participants expressed an interest in the study (see Figure 3). Three did not meet the inclusion criteria and four declined to participate. The remaining 42 participants were assigned to either the intervention or the control group. Two of the 25 participants in the intervention group did not complete the study because of work obligations and another two were lost to follow up. One of the 17 participants in the control group was lost to follow up. Retention rates for the treatment and control groups were 84% (21/25) and 94% (16/17), with an overall retention rate of 88% (37/42).

Demographic information was collected at pre-intervention (see Table 1). The 16 women in the control group ranged in age from 26 to 68 years, for a mean age of 54 years. Their weights ranged from 140 to 327 pounds, for a mean of 196 pounds. The range of BMIs for the women in the control group was from 25 kg/m² to 48 kg/m², for a mean BMI of 33 kg/m². The 21 women in the treatment group ranged in age from 35 to 69 years, for an average age of 57 years. Their weights ranged from 135 to 320 pounds,

for a mean of 201 pounds. The range of BMIs for the women in the treatment group was from 25 kg/m² to 50 kg/m², for a mean BMI of 34 kg/m².

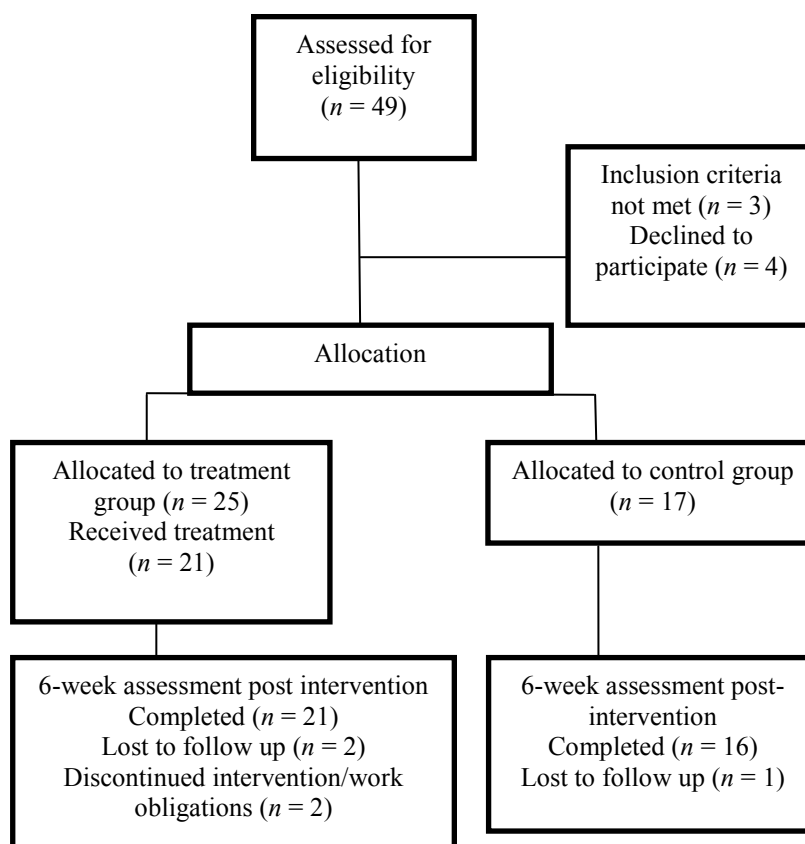


Figure 3. CONSORT flow chart.

Table 1

Description of the Sample

Characteristic	Mean	SD	Minimum	Maximum
Age (years)				
Control‡	54.19	11.36	26	68
Treatment±	57.38	8.98	35	69
Weight (pounds)				
Control‡	196.44	48.23	140	327
Treatment±	201.38	45.25	135	320
Height (inches)				
Control‡	64.69	2.09	62	69
Treatment±	64.71	2.57	60	70
Body mass index (kg/m ²)				
Control‡	32.89	7.11	25	48
Treatment±	33.76	6.77	25	50

‡ n = 16; ± n = 21

Reliability of the Scales

Five measures contained Likert-type response scales. Reliability of these scales was calculated using Cronbach's coefficient alpha. Table 2 contains the values for each group and the total sample at pre-intervention and post-intervention. All coefficient alphas were at or above .84, indicating good internal reliability of these scales.

Table 2

Reliability of the Scales Measured by Cronbach's Alpha

Scale	# of items	Control (n = 16)		Treatment (n = 21)		Total sample (n = 37)	
		Pre	Post	Pre	Post	Pre	Post
Confidence to engage in physical activity	13	.98	.97	.97	.96	.98	.96
Social support							
Family	10	.96	.90	.93	.95	.95	.93
Friends	10	.95	.90	.93	.96	.94	.94
Self-regulation	31	.91	.89	.89	.90	.91	.92
Self-efficacy	9	.94	.96	.94	.84	.94	.92

The three knowledge of physical activity scales were scored using correct/incorrect items. Reliability of scales using 0/1 scoring is best evaluated using Kuder-Richardson 20 (see Table 3). In general, Kuder-Richardson scores range from 0 to 1 with higher scores indicating greater reliability (Di Iorio, 2005). Consequently, a score above .50 is considered acceptable. Only the knowledge of lifestyle physical activities obtained Kuder-Richardson 20 scores above .50. The posttest scores for knowledge of traditional physical activities were constants. A constant is described as a number that is fixed or does not change (Morrison, Smith, McLean, Horsman, & Asker, 2015). Therefore, reliability for this measure could not be calculated.

Table 3

Reliability of the Scales Measured by Kuder-Richardson 20

Scale	# of items	Control (n = 16)		Treatment (n = 21)		Total sample (n = 37)	
		Pre	Post	Pre	Post	Pre	Post
Knowledge of physical activity							
Physical activity guidelines	6	.41	-.34	.26	.34	.36	.12
Traditional physical activities	8	.00	NA	.54	NA	.49	NA
Lifestyle physical activities	6	.78	.79	.82	.58	.79	.72

Results of Data Analysis

Six measurement tools were used to collect data about the dependent variables. Six of the seven research questions were designed to determine differences in African American women's knowledge and beliefs about physical activity, their self-regulation, and social facilitation between groups at baseline and 2 weeks after the intervention ended. Relationships among the variables of interest in African American women who completed a culturally sensitive intervention were also determined.

Variables Used in Analyses

The means and standard deviations of the 10 scales derived from the six measurement tools are presented in Table 4. Knowledge of traditional physical activities was found to be a constant at posttest. Both groups got all eight items correct. Because the value of the dependent variable was a constant, it was not used to answer any research questions. The remaining variables were examined for outliers and homogeneity of variance for each group at both pre- and post-intervention. All variables met the assumptions of the statistical tests used to answer the seven research questions.

Table 4

Means and Standard Deviations of Dependent Variables

Scale	Control (<i>n</i> = 16)				Treatment (<i>n</i> = 21)			
	Pretest		Posttest		Pretest		Posttest	
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Knowledge of								
Physical activity guidelines	4.4	1.2	4.9	0.8	4.9	1.0	5.0	1.1
Traditional physical activities	7.9	0.3	8.0	0.0	7.7	0.7	8.0	0.0
Lifestyle physical activities	3.8	1.3	4.3	1.1	4.4	1.0	4.8	0.8
Confidence to engage in PA	59.0	27.0	62.7	24.6	46.3	26.3	59.2	20.6
Social support								
Family	2.4	1.4	2.2	1.1	2.0	1.0	1.9	1.1
Friends‡	2.5	1.4	2.0	1.0	2.3	1.1	2.7	1.1
Self-regulation±	4.1	0.5	4.3	0.4	3.7	0.6	3.8	0.5
Leisure Time PA								
Strenuousness of PA	33.3	31.9	32.6	23.5	21.0	25.1	37.3	23.7
Frequency of PA	1.2	0.8	1.3	0.6	0.8	0.6	1.3	0.6
Self-efficacy	6.5	2.3	6.9	2.3	5.7‡	2.5	7.0	1.5

Note: Knowledge of PA guidelines and lifestyle PA scores range from 0 to 6

Knowledge of traditional PAs scores range from 0 to 8

Confidence to engage in PA scores range from 0 to 100

Social support scales and self-regulation scores range from 1 to 5

Strenuousness of PA scores range from 0 to 119

Frequency of PA scores range from 0 to 2

Self-efficacy scores range from 0 to 10

‡ women in treatment group scored significantly higher at posttest than women in control group, after controlling for pretest differences ($p = .03$)

± women in treatment group scored significantly lower at posttest than women in control group, after controlling for pretest differences ($p = .02$)

‡ women in treatment group scored significantly higher at posttest than they did at pretest ($p = .05$)

Research Question 1

Is there a significant increase in knowledge about physical activity at 6 weeks for African American women in the treatment group compared with the control group, after controlling for pre-intervention differences?

The independent variable was group (control and treatment), the dependent variables were knowledge of physical activity guidelines and knowledge of lifestyle activities at 6 weeks, and the covariates were knowledge of physical activity guidelines and knowledge of lifestyle activities at pre-intervention. A significant multivariate

difference was not found at post-intervention, $F_{(2, 32)} = 0.46, p = .64$. No significant differences in knowledge of physical activity guidelines or knowledge of lifestyle activities were found between the two groups at post-intervention (see Table 5).

Table 5

Results of MANCOVA for Differences in Knowledge of Physical Activity Guidelines and Knowledge of Lifestyle Activities at 6 Weeks Between African American Women in the Treatment and Control Groups, After Controlling for Pre-Intervention Differences

Source	SS	df	MS	F	p	Partial η^2
Knowledge of PA guidelines						
Corrected model	.19	3	0.06	0.07	.98	< .01
Intercept	33.86	1	33.86	36.30	< .01	.52
Pretest	0.15	1	0.15	0.16	.69	< .01
Group (control/treatment)	0.07	1	0.07	0.07	.79	< .01
Error	30.78	33	0.93			
Total	946.00	37				
Corrected total	30.97	36				
Knowledge of lifestyle activities						
Corrected model	3.42	3	1.14	1.19	.33	.10
Intercept	14.66	1	14.66	15.28	< .01	.32
Pretest	2.52	1	2.52	0.26	.61	< .01
Group (control/treatment)	0.78	1	0.78	0.82	.37	.02
Error	31.66	33	0.96			
Total	807.00	37				
Corrected total	35.08	36				

Research Question 2

Is there a significant increase in level of confidence to engage in physical activity at 6 weeks for African American women in the treatment group compared with the control group, after controlling for pre-intervention differences?

The independent variable was group (control and treatment), the dependent variable was perceived level of confidence to engage in physical activity at 6 weeks, and the covariate was perceived level of confidence to engage in physical activity pre-intervention. No significant difference was found between the groups after controlling for pre-intervention differences (see Table 6).

Table 6

Results of ANCOVA for Differences in Level of Confidence to Engage in Physical Activity at 6 Weeks Between African American Women in the Treatment and Control Groups, After Controlling for Pre-Intervention Differences

Source	SS	df	MS	F	p	Partial η^2
Corrected model	179.15	2	89.57	0.17	.84	.01
Intercept	29235.67	1	29235.57	56.78	< .01	.63
Pretest	70.34	1	70.34	0.14	.71	< .01
Group (control/treatment)	146.62	1	146.62	0.29	.60	< .01
Error	17506.00	34	514.88			
Total	154135.50	37				
Corrected total	17685.14	36				

Research Question 3

Is there a significant increase in physical activity at 6 weeks for African American women in the treatment group compared with the control group, after controlling for pre-intervention differences?

The independent variable was group (control and treatment), the dependent variables were the perceived strenuousness and frequency of physical activity at 6 weeks, and the covariates were the perceived strenuousness and frequency of physical activity pre-intervention. No significant multivariate differences were found in physical activity at post-intervention, $F_{(2, 32)} = .18, p = .83$ (see Table 7).

Research Question 4

Is there a significant increase in perceptions of social facilitation of physical activity at 6 weeks for African American women in the treatment group compared with the control group, after controlling for pre-intervention differences?

Table 7

Results of MANCOVA for Differences in Perceived Strenuousness and Frequency of Physical Activity at 6 Weeks Between African American Women in the Treatment and Control Groups, After Controlling for Pre-Intervention Differences

Source	SS	df	MS	F	p	Partial η^2
Perceived Strenuousness of PA						
Corrected model	832.81	3	277.30	0.49	.70	.04
Intercept	13393.45	1	13393.45	23.43	< .01	.42
Pretest	593.61	1	593.61	1.04	.32	.03
Group (control/treatment)	215.01	1	215.01	0.38	.54	.01
Error	18860.49	33	517.53			
Total	65721.00	37				
Corrected total	19693.30	36				
Frequency of PA						
Corrected model	0.23	3	0.08	0.22	.88	.02
Intercept	21.15	1	21.15	60.70	< .01	.65
Pretest	0.16	1	0.16	0.46	.50	.01
Group (control/treatment)	0.03	1	0.03	0.08	.78	< .01
Error	11.50	33	0.35			
Total	74.00	37				
Corrected total	11.73	36				

The independent variable was group (control and treatment), the dependent variables were the perceived family and friend social facilitation of physical activity at 6 weeks, and the covariates were the perceived family and friend social facilitation of physical activity pre-intervention. A significant multivariate difference was found at post-intervention, $F_{(2, 32)} = 3.90$, $p = .03$. A significant difference in perceived friends' social facilitation of physical activity was found at 6 weeks between women in the treatment and control groups, after controlling for pre-intervention differences (see Table 8). Women in the intervention group scored higher ($M = 2.66$) than those in the control group ($M = 1.96$). No significant difference was found in perceived family social facilitation.

Table 8

Results of MANCOVA for Differences in Perceived Family and Friend Social Facilitation of Physical Activity at 6 Weeks Between African American Women in the Treatment and Control Groups, After Controlling for Pre-Intervention Differences

Source	SS	df	MS	F	p	Partial η^2
Family support						
Corrected model	1.17	3	0.39	0.34	.80	.03
Intercept	15.48	1	15.48	13.33	<.01	.29
Pretest	0.20	1	0.21	0.18	.38	<.01
Group (control/treatment)	0.67	1	0.67	0.57	.45	.02
Error	38.32	33	1.16			
Total	194.78	37				
Corrected total	39.49	36				
Friend support						
Corrected model	7.11	3	2.37	2.35	.09	.18
Intercept	19.11	1	19.11	18.98	<.01	.37
Pretest	2.44	1	2.44	2.42	.13	.07
Group (control/treatment)	5.05	1	5.05	5.01	.03	.13
Error	33.24	33	1.01			
Total	245.84	37				
Corrected total	40.33	36				

Research Question 5

Is there a significant increase in perceived self-regulation of physical activity at 6 weeks for African American women in the treatment group compared with the control group, after controlling for pre-intervention differences?

The independent variable was group (control and treatment), the dependent variable was perceived self-regulation of physical activity at 6 weeks, and the covariate was perceived self-regulation for engaging in physical activity pre-intervention. A significant difference in perceived self-regulation of physical activity was found at 6 weeks between women in the treatment and control groups, after controlling for pre-intervention differences (see Table 9). Women in the intervention group scored lower ($M = 3.80$) indicating less perceived self-regulation than the women in the control group ($M = 4.25$).

Table 9

Results of ANCOVA for Differences in Perceived Self-Regulation of Physical Activity at 6 Weeks Between African American Women in the Treatment and Control Groups, After Controlling for Pre-Intervention Differences

Source	SS	df	MS	F	p	Partial η^2
Corrected model	1.96	2	0.98	4.96	.01	.23
Intercept	8.23	1	8.23	41.68	< .01	.55
Pretest	0.12	1	0.12	0.61	.44	.20
Group (control/treatment)	1.30	1	1.30	6.56	.02	.16
Error	6.71	34	0.20			
Total	599.65	37				
Corrected total	8.67	36				

Research Question 6

Is there a significant increase in perceived self-efficacy for engaging in physical activity at 6 weeks for African American women in the treatment group compared with the control group, after controlling for pre-intervention differences?

The independent variable was group (control and treatment), the dependent variable was perceived self-efficacy for engaging in physical activity at 6 weeks, and the covariate was perceived self-efficacy for engaging in physical activity pre-intervention. No significant differences were found between the groups after controlling for pre-intervention differences (see Table 10).

When no significant difference was found using an ANCOVA, additional analyses were conducted. Additional analyses using paired *t* tests were conducted because they are a more direct method to measure the differences being examined (Elliot & Woodward, 2007). This is an appropriate analysis when comparing means or medians of correlated groups (Kellar & Kelvin, 2013). Because the paired measurement assumption was met, this was an appropriate, additional analysis to perform.

Table 10

Results of ANCOVA for Differences in Perceived Self-Efficacy for Engaging in Physical Activity at 6 Weeks Between African American Women in the Treatment and Control Groups, After Controlling for Pre-Intervention Differences

Source	SS	df	MS	F	p	Partial η^2
Corrected model	0.32	2	0.16	0.05	.96	< .01
Intercept	220.15	1	220.15	61.94	< .01	.65
Pretest	0.29	1	0.29	0.08	.78	.02
Group (control/treatment)	0.78	1	0.08	0.02	.88	< .01
Error	120.85	34	3.55			
Total	1912.46	37				
Corrected total	121.17	36				

Table 11 contains the means and standard deviations of perceived self-efficacy.

Differences between two groups at pre-intervention were not significant, $t_{(33.74)} = 1.12$, $p = .27$, nor were there significant group differences after the intervention, $t_{(35)} = -.10$, $p = .92$. However, paired t tests of each group from pre-intervention to post-intervention showed a significant increase in perceived self-efficacy for engaging in physical activity in African American women in the intervention group, $t_{(20)} = -2.05$, $p = .05$, while no significant increases in perceived self-efficacy were found in the control group, $t_{(15)} = -0.51$, $p = .62$.

Table 11

Means and Standard Deviations of Perceived Self-Efficacy

Perceived self-efficacy	Pretest		Posttest		t	p
	Mean	SD	Mean	SD		
Control ($n = 16$)	6.54	2.32	6.92	2.30	-0.51	.62
Treatment ($n = 21$)	5.65	2.53	6.98	1.45	-2.05	.05

The women in the control group did not increase their perceived self-efficacy for engaging in physical activity from pre-intervention to 6 weeks later. Although the women in the treatment group did not score differently at post-intervention than the women in the control group, a significant difference was found between their scores at

pre-intervention ($M = 5.65$) and their scores at post-intervention ($M = 6.98$), indicating that the culturally sensitive intervention may have helped to increase their self-efficacy.

Research Question 7

Are there significant relationships among knowledge about physical activity, level of confidence to engage in physical activity, physical activity, perceptions of social facilitation of physical activity, self-regulation of physical activity, and self-efficacy for engaging in physical activity in African American women who completed a culturally sensitive intervention?

Several significant, moderate, positive correlations were found among the African American women who completed a culturally sensitive intervention (see Table 12).

Relationships between the women's level of confidence to engage in physical activity and their perceived level of family support ($r = .51$), self-regulation ($r = .45$), and perceived strenuousness of physical activity ($r = .57$) were significant. Correlations between perceived strenuousness of physical activity and friend support ($r = .47$), frequency of physical activity ($r = .44$), and self-efficacy ($r = .50$) were also significant.

Summary

Six measurement tools were used to collect data on 10 dependent variables of interest from 37 African American women. Seven research questions were designed to determine differences in their knowledge and beliefs about physical activity, their self-regulation, and social facilitation between groups at baseline and 2 weeks after the intervention ended. Relationships among the variables of interest in African American women who completed a culturally sensitive intervention were also determined.

Table 12

Relationship Between Dependent Variables in African American Women Who Completed a Culturally Sensitive Intervention (n = 21)

Dependent variables	Pearson product moment correlation (r)							
	2	3	4	5	6	7	8	9
1. Confidence to engage in physical activity	.51*	.06	.45*	.57*	.42	.38‡	-.06	.19
2. Family support		.42	.27	.37	.21	.23	-.02	.35
3. Friend support			-.09	.47*	.17	.20	-.29	.26
4. Self-regulation				.32	.17	.10	.18	-.14
5. Strenuousness of physical activity					.44*	.50*	-.26	.18
6. Frequency of physical activity						.28	-.08	.17
7. Self-efficacy							-.29	-.14
8. Knowledge of physical activity guidelines								-.06
9. Knowledge of lifestyle activities								—

* $p < .05$

‡ In the intention-to-treat analysis, a significant correlation ($r = .54, p < .01$) was found between confidence to engage in physical activity and self-efficacy.

Analyses were conducted to determine if differences existed between the two groups at post-intervention after controlling for pre-intervention difference. No significant differences in knowledge of physical activity guidelines or knowledge of lifestyle activities, perceived level of confidence to engage in physical activity, physical activity, or in family social facilitation were found. The women in the treatment scored significantly higher on perceived friends' social facilitation of physical activity than the women in the control group. Women who completed the culturally sensitive intervention scored significantly lower in perceived self-regulation of physical activity than did the

women in the control group. A paired t test found that women in the treatment group had significantly higher scores at post-intervention than at pre-intervention, indicating that the culturally sensitive intervention may have helped to increase their self-efficacy.

Significant relationships were found among women who had completed a culturally sensitive intervention between their level of confidence to engage in physical activity and their perceived level of family support, self-regulation, and strenuousness of physical activity. Correlations between friend support and strenuousness, strenuousness and frequency of physical activity, and strenuousness and frequency of physical activity and self-efficacy were also significant.

Ancillary Findings

Two roundtable discussions were held for participants in the intervention group during Sessions 2 and 4. The roundtable discussions allowed the participants to discuss any challenges they may have encountered when attempting to add physical activity to their daily regimens. During the first roundtable discussion (Session 2), the researcher asked the participants to describe what they could do to prevent barriers to physical activity. The participants who responded agreed that (a) establishing a routine and (b) engaging in physical activity with a partner would reduce barriers. Other participants responded that (a) changes in the weather, (b) fatigue, and (c) engaging in physical activity without a partner would prevent physical activity engagement. During the second roundtable discussion (Session 4), several of the participants were eager to share their progress. Two of the participants who shared their experiences joined fitness centers and engaged in physical activity at least three times a week. Two additional participants joined a walking group and one participant began a water aerobics regimen two times a week. Although the study did not include a dietary intervention, several

participants expressed a newly discovered awareness of the types of foods that they consumed. One participant explained that she purchased five pieces of fruit per week as a snack for each weekday while at work. Two other participants reported that their food choices were different when they dined out with family and friends. Their food choices consisted of healthier selections that were lower in calories.

CHAPTER V

DISCUSSION AND CONCLUSIONS

This chapter contains a discussion of the study's findings, its limitations, implications for current practice, and recommendations for future research. The purpose of the study was to examine the collective effect of knowledge and beliefs, social facilitation, and self-regulation on the physical activity of African American women using an investigator-designed intervention called GET FIT DON'T QUIT. This study adds to the body of knowledge because few studies have examined how all three variables collectively increase physical activity in African American women. Previous studies examined the influence of physical activity in African American women and knowledge, self-regulation, and social facilitation separately.

Discussion of the Findings

The current study examined the effect knowledge, beliefs, self-regulation, and social facilitation have on increasing physical activity in African American women using the GET FIT DON'T QUIT intervention. The study was successfully conducted. Twenty-one participants in the intervention group demonstrated evidence that supported physical activity behavior change. The women in the intervention group scored significantly higher in perceived friends' social facilitation than did women in the control group. The women in the treatment group scored significantly higher self-efficacy scores at post-intervention than they did at pre-intervention, while the scores for the women in the control group did not change from pre-intervention to post-intervention.

However, women in the intervention group scored significantly lower in perceived self-regulation than did women in the control group. Several significant, moderate, positive correlations were found between the women's level of confidence to engage in physical activity and perceived family support, perceived self-regulation, and perceived strenuousness of physical activity; and between perceived strenuousness of physical activity and perceived friend support, frequency of physical activity, and self-efficacy. Several participants in the intervention group reported that the GET FIT DON'T QUIT intervention helped them establish routines to increase physical activity engagement. Each expressed that the established routines to increase physical activity would continue. Moreover, several participants requested additional sessions because of the motivation received from members of the group.

Research Question 1

No significant differences in knowledge of the physical activity guidelines or lifestyle activities were found between the treatment and control groups. These findings are consistent with those of Knox et al. (2013) who also did not find differences in knowledge of physical activity guidelines in two different samples of adults in the United Kingdom. Similarly, Fredriksson et al. (2018) did not find any significant differences in knowledge of physical activity needed for positive health benefits. One potential explanation for the lack of significant findings about knowledge of physical activity guidelines in the present study may be related to social determinants of health, particularly education. Educational status is often identified as a predictor of positive health outcomes (Hahn & Truman, 2015; Zimmerman et al., 2015). Adults with higher educational levels often experience better health outcomes than those with lower levels of education (Ross, Masters, & Hummer, 2012). Moreover, adults with higher educational

levels also have lower levels of mortality rates than those with lower educational levels (Hummer & Hernandez, 2013). Educational levels were not evaluated in this study, but varying levels of education may be a cause for the lack of significant differences between the treatment and control groups. Another potential explanation for the lack of significant findings may be the length of the study. Distal outcomes, an original construct of ITHBC, were omitted from the intervention because of the time required to realize the benefits. Distal outcomes, the benefit of self-engagement in self-management behaviors, are associated with overall health status. It is possible that the intervention was not long enough to produce knowledge of physical activity guidelines or lifestyle activity changes.

Research Question 2

No significant differences were found in level of confidence to engage in physical activity between participants in the treatment and control groups. Similar findings that demonstrated a lack of significant differences between confidence and physical activity were found by Hoare et al. (2017), who reported that a lack of confidence among the participants was identified as a barrier and prevented physical activity engagement.

A potential explanation for a lack of confidence among the participants in the GET FIT DON'T QUIT intervention is decreased self-efficacy (Research Question 6; no significant differences found). Confidence is a concept that refers to strength of one's belief (Bandura, 1986b). The strength of one's belief is important because confidence has the potential to inform self-efficacy and influence learning (Perry, 2011). Confidence has the potential to regulate thoughts and actions to either achieve a goal or control events (Druckman & Bjork, 1994). Goal attainment and thought regulation may occur because of an individual's self-persuasion and the cognition to process information

(Bandura, 1977). Cognitive processing, which includes performance accomplishments (efficacy information that is built on mastering experiences), has the potential to affect self-confidence (Bandura, 1977). Many African American women are not taught to, or do not prioritize, physical activity engagement. Consequently, some African American women may not achieve performance accomplishments and mastery experiences because physical activity behaviors are not always prioritized. Moreover, because confidence has the potential to influence self-efficacy, it is possible that the intervention was not able to result in increased confidence because the individual belief systems may not have been strong enough to influence self-efficacy and thus change the behavior to engage in physical activity. Consequently, no significant differences were found between the treatment and control groups, thus potentially indicating a diminished level of confidence to cause the behavior change and increase physical activity among the participants.

Research Question 3

No significant differences in physical activity were found between the two groups. Findings from this current study are similar to those found by Joseph et al. (2016). No statistically significant differences were found in moderate to vigorous physical activity after a 3-month physical activity intervention. Thompson et al. (2013) also found no statistically significant results when attempting to increase weekly physical activity participation. The 2-week post follow-up period for the participants in the treatment and control groups occurred during the winter months. Weather conditions may have been a factor affecting physical activity engagement. The post-intervention results were collected during the winter holidays. The time of the year may have changed the participants' original plans to increase physical activity engagement.

Research Question 4

A significant difference in perceived friends' social facilitation of physical activity was found at 6 weeks between African American women in the treatment and control groups, after controlling for pre-intervention differences. Women who completed the culturally sensitive intervention reported higher support from their friends than the African American women who did not complete the intervention. No significant difference was found in perceived family social facilitation. Participants in both the treatment and control groups reported support from family.

Several participants formed partnerships within the treatment group. The participants reported that these newly formed groups provided a source of support to increase physical activity engagement. Participants reported that engaging in physical activity with their support systems encouraged them and served as a source of motivation. The present study's findings are consistent with studies that found statistically significant differences (Alvarado et al., 2013; Cho et al., 2013; Hindle & Carpenter, 2011; Joseph, Keller, et al., 2015; Linnabery et al., 2014; Mailey & McAuley, 2014).

Research Question 5

Increases in perceived self-regulation of physical activity were explored in Research Question 5. A significant difference was found between the two groups. Interestingly, participants in the control group scored higher than participants who completed the culturally sensitive GET FIT DON'T QUIT intervention. This was not an expected finding. No quantitative studies were found that paralleled the findings of the current study. A potential explanation for higher perceived self-regulation of physical activity in the control group may be related to the weekly facts sheets provided. The weekly fact sheets provided general health and wellness topics. While each sheet

provided information on health and wellness, they also provided information about complications that can occur if such practices are not followed. It is possible that the strategies provided to the participants in the treatment group were not as influential as the fact sheets provided to participants in the control group. Studies that measure self-regulation may consider using similar documents provided to the control group that provide both benefits and complications as they relate to general health practices.

An additional potential explanation for the significant difference between the groups may be the length of the self-regulation questionnaire. It was observed during the post-intervention session that many of the participants sighed when completing the 31-item self-regulation questionnaire (SSRQ). Some participants also completed the SSRQ last in the series of questionnaires. Because of the length of the SSRQ, participant burden may have contributed to some of the responses provided by members in the treatment group, thus resulting in the significant differences between participants in the control and treatment groups.

Research Question 6

No significant differences were found in the level of self-efficacy to engage in physical activity between participants in the treatment and control groups. Bandura (1986b) described self-efficacy as the potential to influence behavior change because it is an individual's belief in the ability to complete the task. Self-efficacy involves organization and planning, which influences the behavior change. The greater an individual's self-efficacy, the greater the effort directed toward changing the behavior (Bandura, 1977). The findings from this study are consistent with Joseph et al. (2016), who did not find a significant difference between self-efficacy and exercise self-efficacy, and with Thompson et al. (2013), who did not find a significant difference between self-

efficacy and physical activity. Self-efficacy is important to behavior change and has been described as a determinant of physical activity in previous studies. The findings from the present study may suggest that the participants possessed decreased confidence levels that influenced their ability to increase their physical activity levels; thus, the intervention was not successful at increasing self-efficacy.

Research Question 7

Significant positive correlations were found between women's level of confidence to engage in physical activity, their perceived level of family support, self-regulation, and strenuousness of physical activity. These findings are consistent with other studies (Adams et al., 2015; Alvarado et al., 2013; Artinian et al., 2010; Evans, 2011; Garber et al., 2011; Jones & Paxton, 2015; Linnabery et al., 2014; Mailey & McAuley, 2014; Ries et al., 2014; Shuval et al., 2013; Van Camp & Hayes, 2012). Additional significant positive correlations were found between friend support and strenuousness, strenuousness and frequency of physical activity, and strenuousness and self-efficacy.

The Integrated Theory of Health Behavior Change

The integrated theory of health behavior change (ITHBC) posits that health behavior change and chronic disease management is a dynamic process that requires desire, motivation, and self-reflection to change behaviors that lead to proximal (short-term) and over time distal outcomes (Ryan, 2009). The framework examined the effect knowledge, beliefs, self-regulation, and social facilitation have on increasing physical activity in African American women. The ITHBC was an appropriate framework because findings from the study provided support for several of the model's constructs.

Increasing physical activity engagement with either family members or participants from the intervention is based on the social facilitation concept. The

influence and support from important individuals or those who understand the challenge of changing the behavior have been identified as an essential component needed to engage in physical activity (Alvarado et al., 2013; Evans, 2011; Jones & Paxton, 2015). The use of goals, strategies, and self-evaluative techniques included in daily routines help to change behaviors (Ryan, 2009). Although significant differences were not found in self-efficacy between the control and intervention groups using ANCOVA, significant differences were found between the two groups using paired *t* tests. The women in the treatment group showed significant increases in perceived self-efficacy compared to the women who did not complete the intervention.

In the present study, no significant differences were found between groups on the following variables: (a) knowledge of physical activity guidelines and (b) knowledge of lifestyle activities. Knowledge alone rarely changes behavior (Ryan, 2009). Other variables, such as self-regulation and social facilitation, assist with making informed decisions. Consequently, because of the significant increases in social facilitation and perceived self-efficacy, the ITHBC was an appropriate framework for the current study. Knowledge of physical activity guidelines, knowledge of lifestyle activities, and self-regulation will require further exploration.

Limitations of the Study

Several limitations may affect the generalization of the findings of the present study. Convenience sampling was used for this study. The women included in the study sample were from two different counties and were members of two specific churches. Participants from other counties in the area and members of other churches were not a part of the study. Because the study was confined to specific churches within a specific geographical area, the findings from the present study may not be generalizable to

African American women and other populations from different areas. Another limitation was the small sample size. Although appropriate for pilot studies and the parameters for between groups differences were met according to the Cohen's *d* power tables, larger samples are more representative of the population (Cohen, 1988; Polit & Beck, 2012). Several participants answered the six questionnaires out of the order provided, and answered the longest questionnaire (31 items) last. Moreover, it was observed that several participants displayed audible breath signs (sighed) when answering the longest questionnaire. Thus, respondent burden is another identified limitation of the study. The decision to omit, and not measure, one of the outcome variables of the ITHBC model is another limitation. Distal outcomes were not measured because of time (approximately 6 months) required to realize these benefits (Church et al., 2007). An additional limitation of the study was that actual physical activity participation was not assessed. Only increases or decreases in physical activity as determined by the self-reported physical activity assessments were measured.

Implications for Nursing

Decreased physical activity is a concern for the 82% of African American women greater than age 20 in the United States who are overweight or obese (CDC, 2016c). Consequently, professional nurses are obliged to acknowledge the concern and work to mitigate the issue. The findings from the GET FIT DON'T QUIT intervention can help professional nurses develop interventions and programs to increase physical activity in African American women. The intervention was successfully implemented among African American women in the treatment group. The women were engaged in the different sessions and eager to apply the presented techniques and strategies to their everyday lives. During the roundtable sessions, several women expressed intent to

incorporate many of the strategies. By discussing techniques to increase physical activity for the participants, ideas on ways to include family in their physical activity and to change dietary practices were found. These strategies, and the 84% retention rate, assisted in making the pilot intervention successful.

The findings from this study demonstrated that social facilitation is important to African American women. Social facilitation in the form of social support partners motivates African American women to increase physical activity. Because a lack of social support has been identified as a barrier to physical activity (Jones & Paxton, 2015), programs developed by professional nurses to increase physical activity should include a support system.

Combining self-regulatory processes into physical activity interventions or programs developed by professional nurses may also increase physical activity in African American women and change behavior (Ryan, 2009). Moreover, techniques and programs to enhance self-efficacy may also lead to behavior change. There is evidence from the GET FIT DON'T QUIT intervention to support physical activity behavior change in African American women through support networks, strategies and techniques to develop goals, and enhanced self-efficacy. The evidence from this study adds to the current body of literature by demonstrating that multiple factors affect physical activity engagement in African American women. Historically, the inclusion of physical activity into the routines of African American women was not always a priority (Im et al., 2012). Nevertheless, evidence from this study demonstrates that African American women are eager, and intend to engage in physical activity when there is a social support network and goals that enhances individual self-efficacy. Professional nurses developing programs to increase physical activity are advocates for their patients. As such,

combining positively correlated variables (support networks, strategies and techniques to develop goals, and enhanced self-efficacy) from the GET FIT DON'T QUIT intervention into physical activity behavior programs for African American women may increase their physical activity levels.

Recommendations for Future Research

Although significant relationships and positive correlations were found among several of the theoretical variables, further evaluation of the GET FIT DON'T QUIT intervention is needed. Future studies should use a randomized, controlled design with a larger sample size to ensure a more representative sample. Future studies should use all of the constructs in the ITHBC theory and include distal outcomes, thus increasing the duration of the intervention. Educational levels should also be assessed because of the influence of education on health and mortality. Future studies should also consider measuring actual physical activity, body mass indices, and dietary habits and practices of the participants. Finally, future studies should employ techniques to increase knowledge about physical activity guidelines that are meaningful to the study participants.

Summary

The present pilot study examined the effect of an intervention aimed at influencing knowledge, beliefs, self-regulation, and social facilitation on increasing physical activity in African American women. The preliminary evidence from the study demonstrated significant relationships between social facilitation and increased physical activity, self-regulation and increased physical activity, and self-efficacy and physical activity. Additional analyses demonstrated that the study is feasible.

REFERENCES

- Abbasi, I. (2014). Socio-cultural barriers to attaining recommended levels of physical activity among females. A review of literature. *Quest*, 66(4), 448–467. <https://doi.org/10.1080/00336297.2014.955118>
- Adams, T., Burns, D., Forehand, J. W., & Spurlock, A. (2015). A community-based walking program to promote physical activity among African American women. *Nursing for Women's Health*, 19, 26–35. <https://doi.org/10.1111/1751-486X.12173>
- Affuso, O., Cox, T. L., Durant, N. H., & Allison, D. B. (2011). Attitudes and beliefs associated with leisure-time physical activity among African American adults. *Ethnicity & Disease*, 21(1), 63–67. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3074974/>
- Ajzen, I., Joyce, N., Sheikh, S., & Cote, G. (2011). Knowledge and the prediction of behavior: The role of information accuracy in the theory of planned behavior. *Basic and Applied Social Psychology*, 33, 101–117. <https://doi.org/10.1080/01973533.2011.568834>
- Allen, K., & Morey, M. (2010). Physical activity and adherence in improving patient treatment adherence. In H. Bosworth (Ed.). *Improving treatment patient adherence* (pp. 9–38). New York, NY: Springer.
- Alvarado, M., Murphy, M., & Guell, C. (2013). Barriers and facilitators to physical activity amongst overweight and obese women in an Afro-Caribbean population: A qualitative study. *International Journal of Behavioral Nutrition and Physical Activity*, 12(97), 1–12. <https://doi.org/10.1186/s12966-015-0258-5>

American Association of Colleges of Nursing. (2008). *Toolkit of resources for cultural competent education for baccalaureate nurses*. Washington, DC: Author.

Retrieved from <http://www.aacn.nche.edu/education-resources/toolkit.pdf>

American Heart Association. (2014a). *African Americans & CVD 2014 statistical fact sheet*. Marietta, GA: Author. Retrieved from http://www.heart.org/idc/groups/heart-public/@wcm/@sop/@smd/documents/downloadable/ucm_462015.pdf

American Heart Association. (2014b). *Physical inactivity*. Marietta, GA: Author.

Retrieved from http://www.heart.org/idc/groups/heart-public/@wcm/@sop/@smd/documents/downloadable/ucm_462027.pdf

American Heart Association. (2015). *Cardiovascular disease and diabetes*. Marietta, GA: Author. Retrieved from http://www.heart.org/HEARTORG/Conditions/More/Diabetes/WhyDiabetesMatters/Cardiovascular-Disease-diabetes_UCM_313865_Article.jsp/#.WSSD5-vyupo

American Heart Association. (2017). *Heart disease in African American women*.

Marietta, GA: Author. Retrieved from https://www.goredforwomen.org/about-heart-disease/facts_about_heart_disease_in_women-sub-category/african-american-women/

American Psychological Association. (2014). *Summit on obesity in African American women and girls*. Washington, DC: Author. Retrieved from <https://www.apa.org/pi/women/resources/reports/obesity.pdf>

Amireault, S., Godin, G., Lacombe, J., & Sabiston, C. (2015). The use of the Godin-Shephard Leisure-Time Physical Activity Questionnaire in oncology research: A systematic review. *BMC Medical Research Methodology*, 15(60), 1–11. <https://dx.doi.org/10.1186%2Fs12874-015-0045-7>

- Aneshensel, C., Rutter, C., & Lachenbruch, P. (1991). Social structure, stress, and mental health: Competing conceptual and analytic models. *American Sociological Review*, 56, 166–178. <https://www.jstor.org/stable/2095777>
- Armstrong, K. (2013). Correlates and predictors of Black women's physical activity: Afrocentric insights. *Journal of Black Studies*, 44(6), 627–645. <https://doi.org/10.1177%2F0021934713502809>
- Arthur, C., & Katkin, E. (2006). Making a case for the examination of ethnicity of Blacks in United States health research. *Journal of Health for the Poor and Underserved*, 17, 25–36. <http://dx.doi.org/10.1353/hpu.2006.0017>
- Artinian, N. T., Fletcher, G. F., Mozaffarian, D., Kris-Etherton, P., Van Horn, L., Lichtenstein, A. H., . . . Burke, L. E. (2010). Interventions to promote physical activity and dietary lifestyle changes for cardiovascular risk factor reduction in adults: A scientific statement from the American Heart Association. *Circulation*, 122, 406–441. <https://doi.org/10.1161/CIR.0b013e3181e8edf1>
- Artino, A. (2012). Academic self-efficacy. From educational theory to instructional practice. *Perspectives on Medical Education*, 1(2), 76–85. <https://doi.org/10.1007/s40037-012-0012-5>
- Association of Black Psychologists and American Psychological Association. (2014). *Summit on obesity in African American women and girls*. Washington, DC: University of the District of Columbia. Retrieved from <https://www.apa.org/pi/women/resources/reports/obesity.pdf>
- Aycock, D., Kirkendoll, K., & Gordon, P. (2013). Hypertension education and screening in African American churches. *Journal of Community Health Nursing*, 30(1), 16–27. <https://doi.org/10.1080/07370016.2013.750197>

Bandura, A. (1977). Self-efficacy. Toward a unifying theory of behavioral change.

Psychological Review, 84(2), 191–215. <https://psycnet.apa.org/doi/10.1037/0033-295X.84.2.191>

Bandura, A. (1986a). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1986b). The explanatory and predictive scope of self-efficacy theory.

Journal of Clinical and Social Psychology, 4, 359–373. <https://doi.org/10.1521/jscp.1986.4.3.359>

Baruth, M., Sharpe, P., Parra-Medina, D., & Wilcox, S. (2014). Perceived barriers to exercise and health eating among women from disadvantaged neighborhoods: Results form a focus groups assessment. *Women & Health*, 54, 336–353.

<https://doi.org/10.1080/03630242.2014.896443>

Bennett, G., Foley, P., Levine, E., Whiteley, J., Askew, S., Steinberg, D., . . . Puleo, E.

(2013). Behavioral treatment for weight gain prevention among Black women in primary care practice: A randomized clinical trial. *JAMA Intern Med*, 173(19), 1770–1777. <https://dx.doi.org/10.1001%2Fjamainternmed.2013.9263>

Bertran, E. A., Fritz, H., Abbas, M., Tarakji, S., DiZazzo-Miller, R., Pociask, F. D., . . .

Jaber, L. A. (2015). The impact of Arab American culture on diabetes self-management education. *Diabetes Education*, 41, 748–754. <https://doi.org/10.1177/0145721715607356>

Bertran, E., Pinelli, N., Sills, S., & Jaber, L. (2017). The Arab American experience with diabetes. Perceptions, myths, and implications for culturally specific

interventions. *Primary Care Diabetes*, 11(1), 13–19. <https://doi.org/10.1016/j.pcd.2016.07.004>

- Blackwell, D., Lucas, J., & Clarke, T. (2014). *Summary health statistics for U.S. adults: National health interview survey*. Atlanta, GA: Centers for Disease Control and Prevention. Retrieved from http://www.cdc.gov/nchs/data/series/sr_10/sr10_260.pdf
- Boggs, D. A., Rosenberg, L., Cozier, Y. C., Wise, L. A., Coogan, P. F., Ruiz-Narvaez, E. A., & Palmer, J. R. (2011). General and abdominal obesity and risk of death among Black women. *The New England Journal of Medicine*, 365, 901–908. <https://www.nejm.org/doi/full/10.1056/NEJMoal104119>
- Boud, D. (1995). *Enhancing learning through self-assessment*. New York, NY: Routledge Farmer.
- Bowen, P., Eaves, Y., Vance, D., & Moneyham, L. (2015). A phenomenological study of obesity and physical activity in southern African American older women. *Journal of Aging and Physical Activity*, 23, 221–229. <https://doi.org/10.1123/japa.2013-0039>
- Brewer, E., & Kuhn, J. (2010). Causal comparative design. In N. J. Salkind (Ed.), *Encyclopedia of research design* (Vol. 1, pp. 124–131). Thousand Oaks, CA: Sage.
- Brown, J., Miller, W., & Lawendowski, L. (1999). The self-regulation questionnaire. In L. VandeCreek & T. Jackson (Eds.), *Innovations in clinical practice: A source book* (Vol. 17, pp. 281–289). Sarasota, FL: Professional Resource Press.
- Brown, W., Bauman, A., Bull, F., & Burton, N. (2013). *Development of evidence-based physical activity recommendations for adults (18–64 years)*. Retrieved from [http://www.health.gov.au/internet/main/publishing.nsf/Content/3768EA4DC0BF11D0CA257BF0001ED77E/\\$File/DEBPA%20Adults.PDF](http://www.health.gov.au/internet/main/publishing.nsf/Content/3768EA4DC0BF11D0CA257BF0001ED77E/$File/DEBPA%20Adults.PDF)

- Buchholz, S., & Artinian, N. (2009). Dimensions of physical activity in African American women. *Health Care for Women International*, 30, 308–323. <https://doi.org/10.1080/07399330802694955>
- Buckley, J., Cohen, J., Kramer, A., McAuley, E., & Mullen, S. (2014). Cognitive control in the self-regulation of physical activity and sedentary behavior. *Frontiers in Human Neuroscience*, 8, 747–762. <https://doi.org/10.3389/fnhum.2014.00747>
- Capodilupo, C. (2014). One size does not fit all: Using variables other than the thin ideal to understand Black women's body image. *Cultural Diversity and Ethnic Minority Psychology*, 21(2), 1–12. <http://dx.doi.org/10.1037/a0037649>
- Carey, K., Neal, D., & Collins, S. (2004). A psychometric analysis of the self-regulation questionnaire. *Addictive Behaviors*, 29, 253–260. <https://www.ncbi.nlm.nih.gov/pubmed/14732414>
- Carter, S. R., Walker, A., & Abdul-Latif, S. (2016). Nice to your heart. A pilot community-based intervention to improve heart behaviors in urban residents. *Health Education Journal*, 75(3), 306–317. <https://doi.org/10.1177/2F0017896915577400>
- Centers for Disease Control and Prevention. (2013). Adult participation in aerobic and muscle-strengthening physical activities—United States, 2011. *Morbidity and Mortality Weekly Report*, 62(17), 326–330. <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6217a2.htm>
- Centers for Disease Control and Prevention. (2014). *Facts about physical activity*. Atlanta, GA: Author. Retrieved from <https://www.cdc.gov/physicalactivity/data/facts.htm>

Centers for Disease Control and Prevention. (2015a). *Glossary of terms*. Atlanta, GA:

Author. Retrieved from <http://www.cdc.gov/physicalactivity/basics/glossary/index.htm>

Centers for Disease Control and Prevention. (2015b). *Overweight and obesity*. Atlanta,

GA: Author. Retrieved from <http://www.cdc.gov/obesity/data/adult.html>

Centers for Disease Control and Prevention. (2015c). *Physical activity and health*.

Atlanta, GA: Author. Retrieved from <http://www.cdc.gov/physicalactivity/everyone/health/index.html>

Centers for Disease Control and Prevention. (2015d). *Physical activity facts*. Atlanta,

GA: Author. Retrieved from <http://www.cdc.gov/healthyschools/physicalactivity/facts.htm>

Centers for Disease Control and Prevention (2015e). *The health effects of overweight and*

obesity. Atlanta, GA: Retrieved from <https://www.cdc.gov/healthyweight/effects/index.html>

Centers for Disease Control and Prevention. (2016a). *Adult obesity causes and*

consequences. Atlanta, GA: Author. Retrieved from <https://www.cdc.gov/obesity/adult/causes.html>

Centers for Disease Control and Prevention. (2016b). *High blood pressure facts*. Atlanta,

GA: Author. Retrieved from <https://www.cdc.gov/bloodpressure/facts.htm>

Centers for Disease Control and Prevention. (2016c). *Obesity and African Americans*.

Atlanta, GA: Author. Retrieved from <https://www.minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlid=25>

Centers for Disease Control and Prevention. (2016d). *Women's health*. Atlanta, GA:

Author. Retrieved from <http://www.cdc.gov/nchs/fastats/womens-health.htm>

Centers for Disease Control and Prevention. (2017). *Overcoming barriers to physical activity*. Atlanta, GA: Author. Retrieved from <https://www.cdc.gov/physicalactivity/basics/adding-pa/barriers.html>

Centers for Disease Control and Prevention. (2018). *Burden of tobacco use in the US. Current cigarette smoking among US adults ages 18 and older*. Atlanta, GA: Author. Retrieved from <https://www.cdc.gov/tobacco/campaign/tips/resources/data/cigarette-smoking-in-united-states.html>

Cho, J., Jae, S., & Choo, J., (2013). Health promoting behaviors among women with abdominal obesity: A conceptual link to social support and perceived stress. *Journal of Advanced Nursing*, 70(6), 1381–1390. <https://doi.org/10.1111/jan.12300>

Chugh, M., Friedman, A., Clemow, L., & Ferrante, J. (2013). Women weigh in: Obese African American and White women's perspectives on physicians' roles in weight management. *Journal of the American Board of Family Medicine*, 26(4), 421–428. <https://dx.doi.org/10.3122%2Fjabfm.2013.04.120350>

Church, T., Earnest, C., Skinner, J., & Blair, S. (2007). Effects of different doses of physical activity on cardiorespiratory fitness among sedentary, overweight, or obese postmenopausal women with elevated blood pressure. A randomized control trial. *Journal of the American Medical Association*, 297(19), 2081–2091. <https://doi.org/10.1001/jama.297.19.2081>

Cohen, J. (1988). *Statistical power analysis for the behavior sciences*. Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Cothran, H., & Wysocki, A. (2015). *Developing SMART goals for your organization*. Retrieved from <https://edis.ifas.ufl.edu/fe577>

- Crowne, D. P., & Marlowe, D. (1964). *The approval motive: Studies in evaluative dependence*. New York, NY: Wiley.
- Di Iorio, C. (2005). *Measurement in health behavior*. San Francisco, CA: Josey-Bass.
- DiNoia, J., Furst, G., Park, K., & Byrd-Brenbenner, C. (2013). Designing culturally sensitive dietary interventions for African Americans: Review and recommendations. *Nutrition Reviews*, 71(4), 224–238. <https://doi.org/10.1111/nure.12009>
- Druckman, D., & Bjork, R. (1994). Self-confidence and performance. In National Research Council (Ed.), *Learning, remembering, believing: Enhancing human performance* (pp. 173–206). Washington, DC: National Academy Press.
- Durstine, J., Gordon, B., Wang, J., & Luo, X. (2013). Chronic disease and the link to physical activity. *Journal of Sport and Health Science*, 2, 3–11. <https://doi.org/10.1016/j.jshs.2012.07.009>
- Elliot, A., & Woodward, W. (2007). *Statistical analysis quick reference guidebook with SPSS examples*. Thousand Oaks, CA: Sage.
- Esquivel, D., Hooper, M., Baker, E., & McNutt, R. (2015). Culturally specific versus standard smoking cessation messages targeting Hispanics: An experiment. *Psychology of Addictive Behaviors*, 29(2), 283–289. <https://doi.org/10.1037/adb0000044>
- Evans, L. (2011). Rural Black women's thoughts about exercise. *Applied Nursing Research*, 24(4), 200–206. <https://doi.org/10.1016/j.apnr.2009.09.005>
- Fix, A., & Daughton, D. (1988). *Human activity profile professional manual*. Odessa, FL: Psychological Assessment Resources.

- Foley, P., Levine, E., Askew, S., Puleo, E., Whieley, J., Batch, B., . . . Bennett, G. (2012). Weight gain prevention among Black women in the rural community health center setting: The Shape Program. *BMC Public Health*, *12*(305), 1–11. <https://doi.org/10.1186/1471-2458-12-305>
- Fredriksson, S., Alley, S., Rebar, A., Hayman, M., Vandelanotte, C., & Schoeppe, S. (2018). How are different levels of knowledge about physical activity associated with physical activity behavior in Australian adults? *PLOS One*, *13*(11), 1–10. <https://doi.org/10.1371/journal.pone.0207003>
- Furze, G. (2015). Goal setting: A key skill for person-centered care. *Practice Nursing*, *26*(5), 241–244. <https://doi.org/10.12968/pnur.2015.26.5.241>
- Gallagher, N. A., Gretebeck, K. A., Robinson, J. C., Torres, E. R., Murphy, S. L., & Martyn, K. K. (2010). Neighborhood factors relevant for walking in older, urban, African American adults. *Journal of Aging and Physical Activity*, *18*(1), 99–115. <https://www.ncbi.nlm.nih.gov/pubmed/20181997>
- Garber, C., Blissmar, B., Deschenes, M., Franklin, B., Lamonte, M., Lee, I., . . . Swain, D. (2011). Quantity and quality of exercise for developing and maintaining cardiorespiratory, musculoskeletal and neuromotor fitness in apparently healthy adults. Guidance for prescribing exercising. *Medicine & Science in Sports & Exercise*, *43*(7), 1334–1359. <https://doi.org/10.1249/MSS.0b013e318213fefb>
- Gathers, R., & Mahan, M. (2014). African American women, hair care, and health barriers. *Journal of Clinical Aesthetic Dermatology*, *7*(9), 26–29. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4174916/>
- Gay, L., & Airasian, P. (2000). *Educational research: Competencies for analysis and application* (6th ed.). Englewood Cliffs, NJ: Prentice Hall.

- Gletsu, M., & Tovin, M. (2010). African American women and physical activity. *Physical Therapy Reviews, 15*(3), 405–409. <https://doi.org/10.1179/1743288X10Y.0000000011>
- Gourdine, M. (2011). *Reclaiming our health: A guide to African American wellness*. New Haven, CT: Yale University Press.
- Haas, B., & Northam, S. (2010). Measuring self-efficacy. Development of the physical activity assessment inventory. *Southern Online Journal of Nursing Research, 10*(4), 1–18. <https://www.snrs.org/sites/default/files/SOJNR/2010/Vol10Num04Art03.pdf>
- Hahn, R., & Truman, B. (2015). Education improves public health and promotes health equity. *International Journal of Health Services, 45*(4), 657–678. <https://doi.org/10.1177/0020731415585986>
- Hall, R., Francis, S., Whitt-Glover, M., Loftin-Bell, K., Swett, K., & McMichael, A. (2013). Hair care practices as a barrier to physical activity in African American women. *JAMA Dermatology, 149*(3), 310–314. doi:10.1001/jamadermatol.2013.1946
- Hamlet, J. (2011). Word! The African American oral tradition and its rhetorical impact on American popular culture. *Black History Bulletin, 24*(1), 27–31. <http://people.morrisville.edu/~reymers/readings/SOCI101/African%20Americans%20and%20Popular%20Culture.pdf>
- Harley, A., Rice, J., Walker, R., Strath, S., Quintiliani, L., & Bennett, G. (2014). Physically active, low income African American women: An exploration of activity maintenance in the context of sociodemographic factors associated with

- inactivity. *Women & Health*, 54(4), 354–372. <https://doi.org/10.1080/03630242.2014.896440>
- Henderson, K. (2011). Physical activity among African American women. Change and ways of knowing. *Quest*, 63, 73–84. <https://doi.org/10.1080/00336297.2011.10483665>
- Hindle, L., & Carpenter, C. (2011). An exploration of the experiences and perceptions of people who have maintained weight loss. *Journal of Human Nutrition and Dietetics*, 24, 342–350. <https://doi.org/10.1111/j.1365-277X.2011.01156.x>
- Hoare, E., Stavreski, B., Jennings, G., & Kingwell, B. (2017). Exploring motivation and barriers to physical activity among active and inactive Australian adults. *Sports*, 5(3), 1–8. <https://doi.org/10.3390/sports5030047>
- Huebschmann, A., Campbell, L., Brown, C., & Dunn, A. (2016). “My hair or my health”: Overcoming barriers to physical activity in African American women with a focus on hairstyle-related factors. *Women’s Health*, 56(4), 428–447. <https://dx.doi.org/10.1080%2F03630242.2015.1101743>
- Hummer, R., & Hernandez, E. (2013). The effect of educational attainment on adult mortality in the United States. *Population Reference Bureau*, 68(1), 1–16. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4435622/>
- Im, E. O., Ko, Y., Hwang, H., Yoo, K. H., Chee, W., Stuijbergen, A., . . . Chee, E. (2012). Physical activity as a luxury: African American women’s attitudes toward physical activity. *Western Journal of Nursing Research*, 34(3), 317–339. <https://doi.org/10.1177%2F0193945911400637>
- Ingram, D., Wilbur, J., McDevitt, J., & Buchholz, S. (2011). Women’s walking program for African American women: Expectations and recommendations from

participants as experts. *Women Health*, 51(6), 566–582. <https://dx.doi.org/10.1080/03630242.2011.606357>

Institute of Medicine of the National Academies. (2012). *Accelerating progress in obesity prevention*. Washington, DC: Author. Retrieved from http://iom.edu/~media/Files/Report%20Files/2012/APOP/APOP_rb.pdf

Institute of Medicine of the National Academies. (2015). *Obesity: Complex but conquerable*. Washington, DC: Author. Retrieved from <http://www.iom.edu/Reports/2012/Accelerating-Progress-in-Obesity-Prevention/Infographic.aspx>

Jaber, L. A., Pinelli, N. R., Brown, M. B., Funnell, M. M., Anderson, R., Hammad, A., & Herman, W. H. (2011). Feasibility of group lifestyle intervention for diabetes prevention in Arab Americans. *Diabetes Research and Clinical Practice*, 91(3), 307–315. doi:10.1016/j.diabres.2010.11.032

Jones, A., & Paxton, R. (2015). Neighborhood disadvantage, physical activity barriers, and physical activity among African American breast cancer survivors. *Preventative Medicine Reports*, 2, 622–627. <https://doi.org/10.1016/j.pmedr.2015.07.010>

Jones, L., Hopson, L., & Gomes, A. (2012). Intervening with African Americans: Culturally specific practice interventions. *Journal of Ethnic and Cultural Diversity in Social Work*, 1, 37–54. <https://doi.org/10.1080/15313204.2012.647389>

Joseph, R., Ainsworth, B., Keller, C., & Dodgson, J. (2015). Barriers to physical activity among African American women. *Women's Health*, 55(6), 679–699. <https://doi.org/10.1080/03630242.2015.1039184>

- Joseph, R., Coe, K., Ainsworth, B., Hooker, S., Mathis, L., & Keller, C. (2018). Hair as a barrier to physical activity among African American women. A qualitative exploration. *Frontiers in Public Health*, 5(367), 1–8. <https://doi.org/10.3389/fpubh.2017.00367>
- Joseph, R., Keller, C., Adams, M., & Ainsworth, B. (2015). Print versus a culturally-relevant Facebook and text message delivered intervention to promote physical activity in African American women: A randomized trial. *BMC Women's Health*, 15(30), 1–18. <https://doi.org/10.1186/s12905-015-0186-1>
- Joseph, R., Keller, C., Affuso, O., & Ainsworth, B. (2017). Designing culturally relevant physical activity programs for African American women: A framework for intervention development. *Journal of Racial and Ethnic Health Disparities*, 4(3), 397–409. <https://doi.org/10.1007/s40615-016-0240-1>
- Joseph, R., Pekmezi, D., Dutton, G., Cherrington, A., Kim, Y., Allison, J., & Durant, N. (2016). Results of a culturally adapted internet enhanced physical activity pilot intervention for overweight and obese young adult African American women. *Journal of Transcultural Nursing*, 27(2), 136–146. <https://doi.org/10.1177/1043659614539176>
- Kahlert, D. (2015). Maintenance of physical activity: Do we know what we are talking about. *Preventative Medicine Reports*, 2, 178–180. <https://dx.doi.org/10.1016%2Fj.pmedr.2015.02.013>
- Kahn, E., Ramsey, L., Brownson, R., Heath, G., Howze, E., Powell, K., . . . Corso, P. (2002). The effectiveness of interventions to increase physical activity, a systematic review. *American Journal of Preventative Medicine*, 22, 37–107. <https://www.ncbi.nlm.nih.gov/pubmed/11985936>

- Kellar, S., & Kelvin, E. (2013). *Munro's statistical methods for health care research*. Philadelphia, PA: Lippincott, Williams, & Wilkins.
- Kemper, K., & Welsh, R. (2010). Physical activity behaviors of students of a rural historically Black college. *Journal of American College Health, 58*(4), 327–334. <https://dx.doi.org/10.1080%2F07448480903501772>
- Knox, E., Esliger, D, Biddle, S., & Sherar, L. (2013). Lack of knowledge of physical activity guidelines. Can physical activity promotion campaigns do better? *BMJ Open, 3*(10), 1–6. <http://dx.doi.org/10.1136/bmjopen-2013-003633>
- Kramsch, C. (2003). *Language & culture*. New York, NY: Oxford University Press.
- Krans, E., & Chang, J. (2012). Low-income African American women's beliefs regarding exercise during pregnancy. *Journal of Maternal Child Health, 16*, 1180–1187. <https://doi.org/10.1007/s10995-011-0883-9>
- Kumanyika, S., Whitt-Glover, M., & Haire-Joshu, D. (2014). What works for obesity prevention and treatment in Black Americans? Research directions. *Obesity Reviews, 15*(4), 204–212. <https://doi.org/10.1111/obr.12213>
- Lee, L., Watson, M., Mulvaney, C., Tsai, C., & Lo, S. (2010). The effect of walking intervention on blood pressure control. A systematic review. *International Journal of Nursing Studies, 47*(12), 1545–1561. <https://doi.org/10.1016/j.ijnurstu.2010.08.008>
- Linnabery, E., Stuhlmacher, A., & Towler, A. (2014). From whence cometh their strength: Social support, coping, and well-being of Black women professionals. *Cultural Diversity & Ethnic Minority Psychology, 20*(4), 541–549. <https://psycnet.apa.org/doi/10.1037/a0037873>

- Locke, E., & Latham, G. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*, 57(9), 705–717. <https://doi.org/10.1037/0003-066X.57.9.705>
- Lucan, S., Barg, F., & Long, J. (2010). Promoters and barriers to fruit, vegetable and fast food consumption among urban, low income African Americans: A qualitative approach. *American Journal of Public Health*, 100(4), 631–635. <https://dx.doi.org/10.2105%2FAJPH.2009.172692>
- Mailey, E., Huberty, J., Dinkel, D., & McAuley, E. (2014). Physical activity barriers and facilitators among working mothers and fathers. *BMC Public Health*, 14, 1–9. <https://doi.org/10.1186/1471-2458-14-657>
- Mailey, E., & McAuley, E. (2014). Impact of a brief intervention on physical activity and social cognitive determinants among working mothers: A randomized trial. *Journal of Behavioral Medicine*, 37, 343–355. <https://doi.org/10.1007/s10865-013-9492-y>
- Mama, S. K., McCurdy, S. A., Evans, A. E., Thompson, D. I., Diamond, P. M., & Lee, R. E. (2015). Using community insight to understand physical activity adoption in overweight and obese African American and Hispanic women: A qualitative study. *Health Education & Behavior*, 42(3), 321–328. <https://doi.org/10.1177/1090198114557128>
- Marcus, B., Selby, V., Niaura, R., & Rossi, J. (1992). Self-efficacy and the stages of exercise behavior change. *Research Quarterly for Exercise and Sport*, 63(1), 60–66. <https://doi.org/10.1080/02701367.1992.10607557>
- Marquez, D., Bustamante, E., Aguinaga, S., & Hernandez, R. (2015). BAILAMOS: Development, pilot testing, and future directions of a Latin dance program for

- older Latinos. *Health Education & Behavior*, 42(5), 604–610. <https://doi.org/10.1177/1090198114543006>
- Marquez, D. X., Wilbur, J., Hughes, S., Berbaum, M. L., Wilson, R., Buchner, D. M., & McAuley, E. (2014). B.A.I.L.A.—A Latin dance randomized controlled trial for older Spanish-speaking Latinos: Rationale, design, and methods. *Contemporary Clinical Trials*, 38(2), 397–408. <https://doi.org/10.1016/j.cct.2014.06.012>
- Matthews, A. E., Laditka, S. B., Laditka, J. N., Wilcox, S., Corwin, S. J., Friedman, D. B., . . . Logsdon, R. G. (2010). Older adults' perceived physical activity enablers and barriers: A multicultural perspective. *Journal of Aging and Physical Activity*, 18, 119–140. <https://doi.org/10.1016/j.cct.2014.06.012>
- Mayer, J. (2005). *Emotional intelligence information*. Retrieved from http://www.unh.edu/emotional_intelligence/index.html
- Mayer, J., & Salovey, P. (1997). What is emotional intelligence? In P. Salovey & D. J. Sluyter (Eds.), *Emotional development and emotional intelligence* (p. 5). New York, NY: Basic Books.
- McKenna, H. (1997). *Nursing theories and models*. London, UK: Routledge.
- Meleis, A. (1997). *Theoretical nursing: Development and progress*. Philadelphia, PA: Lippincott-Raven.
- Melnik, B., & Morrison-Beedy, D. (2012). *Intervention research: Designing, conducting, analyzing and funding*. New York, NY: Springer.
- Miles, I., Krufer, J., Liao, Y., Carlson, S., & Fulton, J. (2011). Walking increases among African American adults following a community-based physical activity intervention. *Racial and ethnic approaches to community health, 2002–2005*.

- Journal of Health Disparities Research and Practice*, 5(1), 43–54. <https://digitalscholarship.unlv.edu/cgi/viewcontent.cgi?article=1014&context=jhdrp>
- Miller, W., & Brown, J. (1991). Self-regulation as a conceptual basis for the prevention and treatment of addictive behaviors. In N. Heather, W. Miller, & H. Greeley (Eds.), *Self-control and the addictive behaviours* (pp. 3–79). Sydney, Australia: Maxwell Macmillan.
- Morrison, K., Smith, J., McLean, P., Horsman, R., & Asker, N. (2015). *Mathematics GCSE for Edexcel student book*. Cambridge, UK: Cambridge University Press.
- Morrow, J., Krzewinski-Malone, J., Jackson, A., Bungum, T., & FitzGerald, S. (2004). American adults' knowledge of exercise recommendation. *Research Quarterly for Exercise and Sport*, 75(3), 231–237. <https://doi.org/10.1080/02701367.2004.10609156>
- Mouton, A., Mugnier, B., Demoulin, C., & Cloes, M. (2014). Physical therapists' knowledge, attitudes and beliefs about physical activity: A prerequisite to their role in physical activity promotion? *Journal of Physical Therapy Education*, 28(3), 120–127. <http://hdl.handle.net/2268/171077>
- Murrock, C., & Gary, F. (2008). A culturally-specific dance intervention to increase functional capacity in African American women. *Journal of Cultural Diversity*, 15(4), 168–173. <https://www.ncbi.nlm.nih.gov/pubmed/19202718>
- National Institute of Diabetes and Digestive and Kidney Diseases. (2013). *Glossary of terms related to healthy eating, obesity, physical activity, and weight control*. Washington, DC: U.S. Department of Health and Human Services. Retrieved from <https://www.niddk.nih.gov/health-information/weight-management/glossary-healthy-eating-obesity-physical-activity-weight-control>

- National Institute of Diabetes and Digestive and Kidney Diseases. (2014). *Walking, a step in the right direction*. Washington, DC: U.S. Department of Health and Human Services. Retrieved from <http://www.niddk.nih.gov/health-information/health-topics/weight-control/walking-step-right-direction/Pages/walking-step-right-direction.aspx>
- Neal, D., & Carey, K. (2005). A follow-up psychometric analysis of the self-regulation questionnaire. *Psychology of Addictive Behaviors, 19*(4), 414–422. <https://dx.doi.org/10.1037%2F0893-164X.19.4.414>
- Noonan, A., Velasco-Mondragon, H., & Wagner, F. (2016). Improving the health of African Americans in the USA: An overdue opportunity for social justice. *Public Health Reviews, 37*(12), 1–20. <https://doi.org/10.1186/s40985-016-0025-4>
- Nothwehr, F., & Yang, J. (2006). Goal setting frequency and the use of behavioral strategies related to diet and physical activity. *Health Education Research, 22*(4), 532–538. <https://doi.org/10.1093/her/cyl117>
- Oh, A., Zenk, S., Wilbur, J., Block, R., McDevitt, J., & Wang, E. (2010). Effects of perceived and objective neighborhood crime on walking frequency among midlife African American women in a home-based walking intervention. *Journal of Physical Activity Health, 7*, 432–441. <https://www.ncbi.nlm.nih.gov/pubmed/20683084>
- Otado, J., Kwagyan, J., Edwards, D., Ukaegbu, A., Rockcliffe, F., & Osafo, N. (2015). Culturally competent strategies for recruitment and retention of African American populations into clinical trials. *Clinical and Translational Science, 8*(5), 460–466. <https://dx.doi.org/10.1111%2Fcts.12285>

- Pekmezi, D., Ainsworth, C., Joseph, R., Bray, M. S., Kvale, E., Isaac, S., . . . Demark-Wahnefried, W. (2016). Rationale, design, and baseline findings from HIPP: A randomized controlled trial testing a home-based, individually-tailored physical activity print intervention for African American women in the Deep South. *Contemporary Clinical Trials*, 47, 340–348. <https://doi.org/10.1016/j.cct.2016.02.009>
- Pekmezi, D., Marcus, B., Meneses, K., Baskin, M. L., Ard, J. D., Martin, M. Y., . . . Demark-Wahnefried, W. (2013). Developing an intervention to address physical activity barriers for African American women in the Deep South (USA). *Women's Health*, 9(3), 301–312. <https://doi.org/10.2217/whe.13.20>
- Pender, N., Murdaugh, C., & Parsons, M. (2011). *Health promotion in nursing practice*. Upper Saddle River, NJ: Pearson.
- Perry, P. (2011). Concept analysis: Confidence/self-confidence. *Nursing Forum*, 46(4), 218–230. <https://doi.org/10.1111/j.1744-6198.2011.00230.x>
- Peterson, S., & Bredow, T. (2017). *Middle range theories: Application to nursing research and practice*. Philadelphia, PA: Wolters Kluwer.
- Pickard, J., Inoue, M., Chadiha, L., & Johnson, S. (2011). The relationship of social support to African American caregivers help seeking for emotional problems. *Social Services Review*, 85(2), 246–265. <https://dx.doi.org/10.1086%2F660068>
- Polit, D., & Beck, C. (2012). *Nursing research: Generating and assessing evidence for nursing practice* (9th ed.). Philadelphia, PA: Lippincott, Williams, & Wilkins.
- Polit, D., & Beck, C. (2017). *Nursing research: Generating and assessing evidence for nursing practice* (10th ed.). Philadelphia, PA: Lippincott, Williams, & Wilkins.

- Price, A., Greer, B., & Tucker, A. (2013). Older Black women's experiences initiating and maintaining physical activity: Implications for theory and practice. *Journal of Aging and Physical Activity, 21*, 348–366. <https://doi.org/10.1123/japa.21.3.348>
- Purnell, L. (2013). *Transcultural health care. A culturally competent approach*. Philadelphia, PA: F. A. Davis Company.
- Rampell, C. (2013, May 30). U.S. women on the rise as family breadwinner. *The New York Times*, B1. Available at http://www.nytimes.com/2013/05/30/business/economy/women-as-family-breadwinner-on-the-rise-study-says.html?_r=0
- Resnick, B., & Jenkins, S. (2000). Testing the reliability and validity of the Self-Efficacy for Exercise Scale. *Nursing Research, 49*(3), 154–159. <https://www.ncbi.nlm.nih.gov/pubmed/10882320>
- Resnicow, K., Soler, R., Braithwaite, R., Ahluwalia, J., & Butler, J. (2000). Cultural sensitivity in substance use prevention. *Journal of Community Psychology, 28*(3), 271–290. [https://doi.org/10.1002/\(SICI\)1520-6629\(200005\)28:3%3C271::AID-JCOP4%3E3.0.CO;2-I](https://doi.org/10.1002/(SICI)1520-6629(200005)28:3%3C271::AID-JCOP4%3E3.0.CO;2-I)
- Ries, A., Blackman, R., Page, R., Gizlice, Z., Benedict, S., Barnes, K., . . . Carter-Edwards, L. (2014). Goal setting for health behavior change: Evidence from an obesity intervention for rural low income women. *Rural and Remote Health, 14*(2), 1–12. <https://www.rrh.org.au/journal/article/2682>
- Rimmer, J., Hsieh, K., Graham, B., Berber, B., & Gray-Stanley, J. (2010). Barrier removal in increasing physical activity levels in obese African American women with disabilities. *Journal of Women's Health, 19*(10), 1869–1876. <https://doi.org/10.1089/jwh.2010.1941>

- Robertson, R., Robertson, A., Jepson, R., & Maxwell, M. (2012). Walking for depression or depressive symptoms: A systematic review and meta-analysis. *Mental Health and Physical Activity*, 5(1), 66–75. <https://doi.org/10.1016/j.mhpa.2012.03.002>
- Rodriguez, F., Christopher, L., Johnson, C., Wang, Y., & Foody, J. (2012). Love your heart: A pilot community-based intervention to improve the cardiovascular health of African American women. *Ethnicity & Disease*, 22(4), 416–421. <https://www.ncbi.nlm.nih.gov/pubmed/23140071>
- Romero, A. (2012). A pilot test of the Latin active hip hop intervention to increase physical activity among low income Mexican American adolescents. *American Journal of Health Promotion*, 26(4), 206–211. <https://doi.org/10.4278/ajhp.090123-ARB-24>
- Ross, C., Masters, R., & Hummer, R. (2012). Education and the gender gaps in health and mortality. *Demography*, 49(4), 1157–1183. <https://dx.doi.org/10.1007%2Fs13524-012-0130-z>
- Ryan, P. (2009). Integrated theory of health behavior change. *Clinical Nurse Specialist*, 23(3), 161–172. <https://dx.doi.org/10.1097%2FNUR.0b013e3181a42373>
- Sallis, J., Grossman, R., Pinski, R., Patterson, T., & Nader, P. (1987). The development of scales to measure social support for diet and exercise behaviors. *Preventative Medicine*, 16, 825–836. [https://doi.org/10.1016/0091-7435\(87\)90022-3](https://doi.org/10.1016/0091-7435(87)90022-3)
- Sammarco, A. (2017). *Women's health issues across the life cycle*. Burlington, MA: Jones and Bartlett.
- Scarinci, I. C., Moore, A., Wynn-Wallace, T., Cherrington, A., Fouad, M., & Li, Y. (2014). A community-based, culturally relevant intervention to promote healthy eating and physical activity among middle-aged African American women in

- rural Alabama: Findings from a group randomized controlled trial. *Preventative Medicine*, 69, 13–20. <https://doi.org/10.1016/j.ypmed.2014.08.016>
- Schaufeli, W. (2013). What is engagement? In C. Truss, K. Alfes, R. Delbridge, A. Shantz, & E. Soane (Eds.), *Employee engagement in theory and practice* (pp. 15–35). London, UK: Routledge.
- Sebastião, E., Chodzko-Zajko, W., & Schwingel, A., & (2015). An in-depth examination of perceptions of physical activity in regularly active and insufficiently active older African American women: A participatory approach. *PLOS ONE*, 10(11): e0142703. <https://doi.org/10.1371/journal.pone.0142703>
- Senior, J., Cason, K., Martinez-Dawson, R., Visser, R., & Dawson, P. (2015). Culturally tailored nutrition education interventions. Why focus on African American women? *Journal of Nutritional Health and Food Engineering*, 2(2), 1–3. <https://pdfs.semanticscholar.org/9249/e62ba80e5695ff00198dad0a2a4a1d9adf31.pdf>
- Shuttleworth, M. (2008). *Quasi-experimental design*. Retrieved from <https://explorable.com/quasi-experimental-design>
- Shuval, K., Hebert, E., Siddiqi, Z., Leonard, T., Lee, S. C., Tiro, J. A., . . . Skinner, C. S. (2013). Impediments and facilitators to physical activity and perceptions of sedentary behavior among urban community residents: The Fair Park study. *Preventing Chronic Disease*, 10, 1–7. <http://dx.doi.org/10.5888/pcd10.130125>
- Siddiqi, T., Tiro, J., & Shuvall, K. (2011). Understanding impediments and enablers to physical activity among African American adults. A systematic review of qualitative studies. *Health Education Research*, 26(6), 1010–1024. <https://doi.org/10.1093/her/cyr068>

- Stennis, K., Purnell, K., Perkins, E., & Fischle, H. (2015). Lesson, learned: Conducting culturally competent research and providing interventions with Black churches. *Social Work & Christianity*, 42(3), 332–349.
- Strong, B., DeVault, C., & Cohen, T. (2010). *The marriage and family experience: Intimate relationships in a changing society*. Belmont, CA: Wadsworth Publishing.
- Stuart-Shor, E., Berra, K., Kamau, M., & Kumanyika, S. (2012). Behavioral strategies for cardiovascular risk reduction in diverse and underserved racial/ethnic groups. *Circulation*, 125, 171–184. <https://dx.doi.org/10.1161%2FCIRCULATIONAHA.110.968495>
- Thompson, T., & Kreuter, M. (2014). Using writing narratives in public health practice: A creative writing perspective. *Preventing Chronic Disease*, 11, 1–7. <https://doi.org/10.5888/pcd11.130402>
- Thompson, W., Berry, D., & Hu, J. (2013). A church based intervention to change attitudes about physical activity among Black adolescent girls: A feasibility study. *Public Health Nursing*, 30(3), 221–230. <https://dx.doi.org/10.1111%2Fphn.12009>
- Thompson-Brenner, H., Boisseau, C., & St. Paul, M. (2011). Representation of ideal figure size in Ebony magazine: A content analysis. *Body Image*, 8, 373–378. <https://doi.org/10.1016/j.bodyim.2011.05.005>
- Tussing-Humphreys, L., Fitzgibbon, M., Kong, A., & Odoms-Young, A. (2013). Weight loss maintenance in African American women: A systematic review of the behavioral lifestyle interventions in literature. *Journal of Obesity*, 2013, 1–31. <http://dx.doi.org/10.1155/2013/437369>

- Unger, B., & Schwartz, S. (2012). Conceptual considerations in studies of cultural influences on health behaviors. *Preventative Medicine*, 55(5), 353–355.
- University of Kansas. (2016). *Work group for community health and development: The community toolbox*. Kansas City, KA: Author. Retrieved from <http://ctb.ku.edu/en/table-of-contents/culture/cultural-competence/culturally-competent-organizations/main>
- U.S. Department of Commerce. (2018). *U.S. and world population clock*. Washington, DC: U.S. Census Bureau. Retrieved from <https://www.census.gov/popclock/>
- U.S. Department of Health and Human Services. (2010). *Minority women's health*. Washington, DC: Office on Women's Health. Retrieved from <https://www.womenshealth.gov/minority-health/african-americans/diabetes.html>
- U.S. Department of Health and Human Services. (2014). *Obesity prevention and control: Technology supported multicomponent coaching or counseling intervention to maintain weight loss. (Community guide recommendations)*. Washington, DC: Office of Disease Prevention and Health Promotion. Retrieved from <http://www.healthypeople.gov/2020/tools-resources/evidence-based-resource/obesity-prevention-and-control-technology-supported-0>
- U.S. Department of Health and Human Services. (2016a). *Obesity and African Americans*. Washington, DC: Office of Minority Health. Retrieved from <https://www.minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlid=25>
- U.S. Department of Health and Human Services. (2016b). *Step it up! The surgeon general's call to action to promote walking and walkable communities*. Washington, DC: Author. Retrieved from <http://www.surgeongeneral.gov/library/calls/walking-and-walkable-communities/exec-summary.html>

- U.S. Department of Health and Human Services. (2017a). *Facts and statistics physical activity*. Washington, DC: Author. Retrieved from <https://www.hhs.gov/fitness/resource-center/facts-and-statistics/index.html>
- U.S. Department of Health and Human Services. (2017b). *Obesity and African Americans*. Washington, DC: Office of Minority Health. Retrieved from <https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlid=25>
- U.S. Department of Health and Human Services. (2018). *Fact sheets*. Washington, DC: Author. Retrieved from <https://www.womenshealth.gov/printables-and-shareables/resource/fact-sheets>
- U.S. Department of Labor. (2016a). *Black women in the labor force*. Retrieved from https://www.dol.gov/wb/media/Printer_Friendly_Black_Women_in_the_Labor_Force.pdf
- U.S. Department of Labor. (2016b). *Employment characteristics of families 2015*. Washington, DC: Bureau of Labor Statistics. Retrieved from <http://www.bls.gov/news.release/pdf/famee.pdf>
- Van Camp, C., & Hayes, L. (2012). Assessing and increasing physical activity. *Journal of Applied Behavior Analysis*, 45, 871–875. <https://dx.doi.org/10.1901%2Fjaba.2012.45-871>
- Versey, H. (2014). Centering perspectives on Black women, hair politics and physical activity. *American Journal of Public Health*, 104(5), 810–815. <https://ajph.aphapublications.org/doi/10.2105/AJPH.2013.301675>
- Vespa, J., Lewis, J., & Kreider, R. (2012). *America's families and living arrangements 2012*. Retrieved from <https://www.census.gov/prod/2013pubs/p20-570.pdf>

- White, I. R., Horton, N. J., Carpenter, J., & Pocock, S. J. (2011). Strategy for intention to treat analysis in randomized trials with missing outcome data. *BMJ*, 342, 40. <https://doi.org/10.1136/bmj.d40>
- Whitt-Glover, M., & Affuso, O. (2017). *The truth about physical activity in the Black community*. [Video Webinar]. Retrieved from https://www.youtube.com/watch?time_continue=233&v=fQcF1aNhZxo
- Whitt-Glover, M., Goldmon, M., Karanja, N., Heil, D., & Gizlice, Z. (2012). Learning and developing individual exercise skills (LADIES) for a better life: A physical activity intervention for Black women. *Contemporary Clinical Trials*, 33(6), 1159–1171. <https://dx.doi.org/10.1016%2Fj.cct.2012.08.003>
- Wilson, L. (2011). Cultural competency: Beyond the vital signs, delivering holistic care to African Americans. *Nursing Clinics of North America*, 46(2), 219–232. <https://doi.org/10.1016/j.cnur.2011.02.007>
- Woods-Giscombe, C. (2010). Superwoman schema: African American women's views on stress, strength and health. *Qualitative Health Research*, 20, 668–683. <https://dx.doi.org/10.1177%2F1049732310361892>
- Woolford, S., Woolford-Hunt, C., Sami, A., Blake, N., & Williams, D. (2016). No sweat: African American girls' opinions of hairstyle choices and physical activity. *BMC Obesity*, 3(31), 1–8. <https://dx.doi.org/10.1186%2Fs40608-016-0111-7>
- World Health Organization. (2019a). *Global strategy on diet, physical activity, and health: Physical activity*. Retrieved from <http://www.who.int/dietphysicalactivity/pa/en/>

- World Health Organization. (2019b). *Global strategy on diet, physical activity, and health: Physical inactivity*. Retrieved from https://www.who.int/dietphysicalactivity/factsheet_inactivity/en/
- Youdim, A. (2016). *Carbohydrates, proteins, fats*. Retrieved <http://www.merckmanuals.com/home/disorders-of-nutrition/overview-of-nutrition/carbohydrates,-proteins,-and-fats>
- Zijlmans, E., Tijmstra, J., Andries van der Ark, L., & Sijtsma, K. (2018). Item score reliability in empirical data sets and its relationship with other item indices. *Educational and Psychological Measurement*, 78(6), 998–1020. <https://journals.sagepub.com/doi/10.1177/0013164417728358>
- Zimmerman, B., & Schunk, D. (2011). *Handbook of self-regulation of learning and performance*. New York, NY: Taylor & Francis.
- Zimmerman, E., Woolf, S., & Haley, A. (2015). Understanding the relationship between education and health. A review of the evidence and an examination of community perspectives. In Kaplan, R., Spittel, M., & David, D. (Eds.) *Population health: Behavioral and social science insights*. Rockville, MD: Agency for Healthcare Research and Quality.

APPENDICES

Appendix A. Support Letters



Arthur L. Powell, Pastor

Joan Cranford, EdD, RN, Research Advisor
Assistant Dean in Nursing
Georgia State University
33 Gilmer Street SE
Atlanta, Georgia

Dear Dr. Cranford,

This letter is to inform you that Elicia S. Collins, a doctoral student at Georgia State University, has my permission to perform physical activity research in African American women here at Travelers Rest Baptist Church. Please contact me directly at 404-366-4165 for additional information if needed.

Sincerely,

A handwritten signature in cursive script that reads "Arthur L. Powell".

Rev. Dr. Arthur L. Powell
Pastor

Floyd Chapel Baptist Church

104 First Street Stockbridge, GA 30281 * (678) 201-9456
Reverend Edward C. Cochran Sr., Pastor/Reverend Katina Erewa Assistant Pastor

Joan Cranford, EdD, RN Research Advisor
Assistant Dean in Nursing
Georgia State University
33 Gilmer Street SE
Atlanta, GA 30303

Dear Dr. Cranford,

This letter is to inform you that Ellicia S. Collins, a doctoral student at Georgia State University has my permission to perform physical activity research in African American women here at Floyd Chapel Baptist Church. Please contact me edward.cochransr@gmail.com for additional information.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ed Cochran', with a stylized flourish at the end.

Reverend Edward C. Cochran Sr., Pastor

Appendix B. GET FIT DON'T QUIT Intervention

Variable	Topics	Implementation	Sessions
Knowledge	Explain physical activity to the participants	<p>Communicate to the participants that physical activity involves using muscles to move the body to expend energy (WHO, 2018).</p> <p><i>Examples of physical activity include brisk walking, bicycling, stair walking, engaging in water activities (swimming or aerobics), mowing the lawn with a self-propelled mower, cleaning the home to favorite fast-paced music, or walking the family pet beyond the front lawn or back yard.</i></p>	Session I
	Describe the 2008 Physical Activity Guidelines and the intensity required for benefit	<p>Explain to the participants that 30 minutes of moderate physical activity is beneficial for cardiovascular health. Show a video on physical activity intensity.</p> <p><i>(Ex. Participants will be taught to exert enough energy to speak but not be able to sing their words, while participating in physical activity, which is an indicator of moderate activity (WHO, 2018).</i></p>	Session I
	Provide methods to achieve increased physical activity	<p>Provide and discuss strategies on physical activity engagement. Communicate to the participants that 30 minutes of moderate activity can be achieved in one 30-minute session or in three 10-minute increments.</p> <p><i>(Ex. Walk up and down the stairs in the house for 10 minutes, then break. Walk another 10 minutes, then break, Walk the final 10 minutes, then break).</i></p>	Session I
	Discuss the benefits of physical activity	<p>Discuss the benefits of physical activity to the participants.</p> <p>Examples of physical activity benefits include <i>weight maintenance, weight loss, improved mood (participants are happier with less stress), positive self-esteem, and improved cardiovascular health (Mouton, Mugnier, Demoulin, & Cloes, 2014).</i></p>	Session I
	Suggest the use of safety strategies while engaging in physical activity	<p>Encourage the participants to engage in physical activity during daylight hours and ensure that the physical activity area is well populated. Provide a pamphlet about strategies to attain moderate activity levels in a safe and secure environment.</p> <p>Engage in physical activity in the local community health center (<i>e.g., the local YMCA, neighborhood tennis courts, pool, and bike and walking trails</i>).</p>	Session I

Variable	Topics	Implementation	Sessions
Self-regulation	Recommend strategies to maintain physical activity	Demonstrate to the participants how to track physical activity and the minutes engaged in physical activity. <i>Examples of tracking devices to record physical activity include logs, notebooks, computer software and tablet devices, electronic physical activity tracking systems</i>	Session II
	Suggest strategies to maintain a consistent physical activity regimen	Explain to the participants that a consistent physical activity regimen is part of self-regulation. Explore individual schedules with the participants and identify 30 minutes each day where physical activity can be added to their daily schedules (<i>in the morning prior to work or home responsibilities, during their lunch hour or after dinner</i>). Encourage participation in physical activity engagement at the same time every day (establishes a routine).	Session III
	Offer goal setting techniques to increase physical activity	Provide information to the participants about how to use the SMART acronym to develop goals (Cothran & Wysocki, 2015). Goals are specific (<i>Encourage participants to engage in physical activity 30 minutes each day for 5 days</i>). Goals are measurable. Teach the participants to count/record the daily minutes in physical activity; determine a goal completion date. (<i>Ex. I will walk 30 minutes a day, for 5 days in 4 weeks</i>). Goals are attainable and realistic. Teach the participants to set small short-term goals. (<i>Ex. Develop short-term realistic goals that expand to more broad long term goals; walk 10 minutes a day in Week 1, 15 minutes a day in Week 2, 20 minutes a day in Week 3, 25 minutes a day in Week 4</i>). Goals are timed. (<i>Ex. Teach the participant to walk three times a week for 4 weeks; once attained, re-evaluate existing goals and set new goals</i>).	

Variable	Topics	Implementation	Sessions
	Explore different approaches to reduce sedentary behaviors and increase physical activity	<p>Encourage the participants to reduce television and computer time by 30 minutes each day by engaging in physical activity.</p> <p>Recommend to the participants ways to reduce time spent at the lunch and dinner table each day by 30 minutes (<i>Ex. Engage in physical activity 30 minutes after each meal</i>).</p> <p>Provide alternatives to the participants to reduce snack and work breaks during the day; teach physical activity breaks (<i>Ex. brisk walks outside or through the house</i>).</p>	Session II
	Propose a scheduling system to share family responsibilities to reduce physical activity barriers	<p>Encourage the participants to share household obligations with another adult within the home</p> <p>(<i>Ex. Cooking, grocery shopping, laundry, and dependent responsibilities every other day, or every other week</i>).</p>	Session IV
Social facilitation	Discuss the importance of a buddy or support person to increase physical activity	<p>Help the participants select a buddy or family support person. Socially supportive environments influence behavior change (Kahn et al., 2002).</p> <p>(<i>Ex. Meet and greet session will occur; participants can select a buddy (or use a family support person) as a source of support from the intervention; buddies will create a social network for the intervention participants; provides companionship through physical activity. Participants can call, text, or email each other as a source of monitoring and support</i>).</p> <p><i>Family members can select a family support person; family has the potential to influence behavior change;</i></p> <p><i>Participants will also be taught that children can also be included as support persons; increasing physical activity is a form of modeling behavior for children. Children can ride their bikes, scooters, skateboards with parents.</i></p>	Session I
	Facilitate support from family	<p>Provide strategies to the participants on how to incorporate the entire family into daily physical activity regimens:</p> <p>(<i>Ex. Walk as a family after dinner, walk the family pet together in the neighborhood, take a neighborhood bike ride, bowl on the weekends</i>).</p>	Session IV

Variable	Topics	Implementation	Sessions
	Provide strategies to motivate the partner that is engaging in physical activity	Discuss and provide appraisal techniques, such as offering support and encouragement (Harley et al., 2009) to their physical activity partners <i>(Ex. You are doing a great job; Keep up the good work).</i>	Session II
	Demonstrate strategies to manage negative physical activity comments	Demonstrate to the participants how to manage negative physical activity comments with good physical activity concepts and benefits. <i>(Ex. Participants can explain the health-related benefits of regular physical activity. Demonstrate improved self-esteem my clothes fit better, I am comfortable and feel better in my clothes; I look better; I have more energy).</i> Encourage participants to recommend physical activity strategies to their colleagues to experience similar results. <i>(Ex. Illustrate or explain to colleagues to start with a small goal, 10 minutes each day with increases throughout the regimen).</i>	Session II

Appendix C. Knowledge of Physical Activity Questionnaire

Directions: Read the following questions about physical activity. After reading the question, answer the questions about physical activity.

1. "What is the minimum number of days per week you believe a person must be physically active in order to receive any health benefit?"

3 days
4 days
5 days
2. "What is the minimum length of time (in minutes) one needs to be physically active throughout a typical day in order to achieve a health benefit?"
3. "Vigorous levels of physical activity are necessary to provide a health benefit."

True or False
4. "Moderate levels of physical activity do NOT provide any health benefits."

True or False
5. "Ten minutes of physical activity three times per day provide the same health benefits as a single session of 30 minutes."

True or False
6. "Everyone should get 30 minutes of moderate physical activity most days of the week."

True or False
7. "Which of the following physical activities do you believe will provide a health benefit?"

a) Aerobics class	Yes or No
b) Biking	Yes or No
c) Dancing	Yes or No
d) Gardening and lawn work	Yes or No
e) Household cleaning	Yes or No
f) Jogging/running	Yes or No
g) Playing a musical instrument	Yes or No
h) Moving furniture	Yes or No
i) Preparing meals	Yes or No
j) Raking leaves	Yes or No
k) Recreational sports (e.g., team and individual sports)	Yes or No
l) Swimming	Yes or No
m) Walking	Yes or No
n) Weight lifting	Yes or No

Appendix D. Physical Activity Assessment Inventory (PAAI)

Using the 0 to 100 scale below, rate how sure you are that you can perform your usual activities regularly under the following conditions.

Physical activity refers to all activity at home, work, or leisure.

0	10	20	30	40	50	60	70	80	90	100
Cannot do at all					Moderately certain can do					Certain can do

I am confident I can perform my usual activities (includes all activity at home, work, or leisure):

1. When I am feeling tired _____
2. When I am feeling pressure from work or school _____
3. During bad weather _____
4. During or after experiencing personal problems _____
5. When I am feeling depressed _____
6. When I am feeling anxious _____
7. When I feel physical discomfort with an activity _____
8. When I have too much work to do at home _____
9. When I/we have visitors _____
10. When there are other interesting things to do _____
11. When I don't have support from my family or friends _____
12. When I have other time commitments _____
13. When I do not feel well _____

Appendix E. Social Support for Physical Activity Scale

Below is a list of things people might do or say to someone who is trying to engage in physical activity regularly.

Please rate each question *twice*. Under *family*, rate how often anyone living in your household has said or done what is described during the last 3 months. Under *friends*, rate how often your friends, acquaintances, or coworkers have said or done what is described the last 3 months.

Please write *one* number from the following rating scale in each space.

During the **last 3 months**, how often did your family (or members of your household) and your friends do the following things?

	None 1	Rarely 2	A few times 3	Often 4	Very often 5	
					Family	Friends
1. Engaged in physical activity with me.						
2. Offered to engage in physical activity with me.						
3. Gave me helpful reminders to engage in physical activity (“Are you going to engage in physical activity tonight?”)						
4. Gave me encouragement to stick with my physical activity program.						
5. Changed their schedule so we could engage in physical activity together.						
6. Discussed physical activity with me.						
7. Planned for physical activity on recreational outings.						
8. Helped plan activities around my physical activity.						
9. Asked me for ideas on how they can get more physical activity.						
10. Talked about how much they like to engage in physical activity						

Appendix F. Short Self-Regulation Questionnaire (SSRQ)

Directions: Please respond to the following questions by circling the response that best describes how you are. There are no right or wrong answers. Work quickly and do not think too long about your answers.

	Strongly disagree 1	Disagree 2	Uncertain or unsure 3	Agree 4	Strongly agree 5
I usually keep track of progress toward my goals.	1	2	3	4	5
I have trouble making up my mind about things.	1	2	3	4	5
I get easily distracted from my plans.	1	2	3	4	5
I don't notice the effects of my actions until it is too late.	1	2	3	4	5
I am able to accomplish goals I set for myself.	1	2	3	4	5
I put off making decisions.	1	2	3	4	5
It's hard for me to notice when I've had enough (alcohol, food, sweets).	1	2	3	4	5
If I wanted to change, I am confident that I could do it.	1	2	3	4	5
When it comes to deciding about change, I feel overwhelmed by the choices.	1	2	3	4	5
I have trouble following through with things once I've made up my mind to do something.	1	2	3	4	5
I don't seem to learn from my mistakes.	1	2	3	4	5
I can stick to a plan that's working well.	1	2	3	4	5
I usually only have to make a mistake one time in order to learn from it.	1	2	3	4	5
I have personal standards and I try to live up to them.	1	2	3	4	5
As soon as I see a problem or challenge, I start looking for possible solutions.	1	2	3	4	5
I have a hard time setting goals for myself.	1	2	3	4	5
I have a lot of willpower.	1	2	3	4	5
When I'm trying to change something, I pay a lot of attention to how I'm doing.	1	2	3	4	5
I have trouble making plans to reach my goals.	1	2	3	4	5
I am able to resist temptation.	1	2	3	4	5
I set goals for myself and keep track of my progress.	1	2	3	4	5
Most of the time, I don't pay attention to what I'm doing.	1	2	3	4	5
I tend to keep doing the same thing even when it does not work for me.	1	2	3	4	5
I can usually find several different possibilities when I want to change something.	1	2	3	4	5
Once I have a goal, I can usually plan how to reach it.	1	2	3	4	5
If I make a resolution to change something, I pay a lot of attention to how I'm doing. ...	1	2	3	4	5
Often I don't notice what I'm doing until someone calls it to my attention.	1	2	3	4	5
I usually think before I act.	1	2	3	4	5
I learn from my mistakes.	1	2	3	4	5
I know how I want to be.	1	2	3	4	5
I give up quickly.	1	2	3	4	5

Appendix G. Godin Shephard Leisure Time Physical Activity Questionnaire

During a typical 7-day period (a week), how many times on the average do you do the following kinds of exercise for more than 15 minutes?

Times per week

STRENUOUS EXERCISE (HEART BEATS RAPIDLY)

(e.g., running, jogging, football, soccer, squash, basketball, judo, roller skating, vigorous swimming, vigorous long distance biking)

MODERATE EXERCISE (NOT EXHAUSTING)

(e.g., fast walking, baseball, tennis, easy cycling, volleyball, badminton, easy swimming, popular and folk dancing)

MILD EXERCISE (MINIMAL EFFORT)

(e.g., yoga, archery, fishing from riverbank, bowling, horseshoes, golf, easy walking)

During a typical 7-day period, how often do you engage in any regular activity long enough for your heart to beat rapidly?

OFTEN

SOMETIMES

NEVER/RARELY

How confident are you right now that you could engage in physical activity three times per week for 20 minutes if:

	Not confident										Very confident	
1.	the weather was bothering you	0	1	2	3	4	5	6	7	8	9	10
2.	you were bored by the program or activity	0	1	2	3	4	5	6	7	8	9	10
3.	you felt pain when engaging in physical activity	0	1	2	3	4	5	6	7	8	9	10
4.	you had to engage in physical activity alone	0	1	2	3	4	5	6	7	8	9	10
5.	you did not enjoy it	0	1	2	3	4	5	6	7	8	9	10
6.	you were too busy with other activities	0	1	2	3	4	5	6	7	8	9	10
7.	you felt tired	0	1	2	3	4	5	6	7	8	9	10
8.	you felt stressed	0	1	2	3	4	5	6	7	8	9	10
9.	you felt depressed	0	1	2	3	4	5	6	7	8	9	10

Appendix I. GET FIT DON'T QUIT Staff Manual

GET FIT DON'T QUIT
Physical Activity Intervention
Staff MANUAL
2018

Study Protocol

The purpose of this study is to use a two-group pretest/posttest experimental design to examine the effect knowledge and beliefs, self-regulation, and social facilitation have on increasing physical activity in African American women. The goal of this study is to increase physical activity in African American women through a comprehensive, 6-week intervention that increases knowledge and changes beliefs about physical activity, and uses social facilitation and self-regulation. The specific aims of this pilot study are to examine the collective effect of knowledge and beliefs, social facilitation, and self-regulation on the physical activity of African American women using an investigator-designed intervention called GET FIT DON'T QUIT. Thirty-four participants will be recruited from two community churches and life centers. In this study, participants will participate in teaching sessions, round table discussions, and goal setting strategies to begin and increase physical activity, strategies, and techniques to reduce sedentary behaviors, and to learn about the importance of incorporating a support person to assist with increasing physical activity. The outcome, measured at baseline and 2 weeks post-intervention, will be an increase in physical activity. Participants in the intervention group will receive a weekly email reminder, telephone call, or text message (the participant's choice) about ways to increase physical activity.

African American women will be recruited from two African American Baptist churches in two counties in a southeastern state. In this study, participants will be taught about physical activity using the 2008 physical activity guidelines. Participants will also discuss the benefits of strategies to increase physical activity engagement, learn how to develop and achieve specific goals to engage in physical activity, select a buddy to engage in physical activity, and receive/solicit support from family members while managing negative physical activity comments and behaviors.

Recruitment Strategies

Multiple recruitment strategies will be used including flyers that will be distributed at both church locations, the associated life centers, and in the parking lots of the facilities. The flyers will contain a description of the study, contact information for the primary investigator, and a telephone number to call for additional information. The primary investigator will recruit the study participants. The primary investigator and the participants will sit in the quiet, designated room (as assigned by the individual churches) to recruit and screen participants. To recruit participants from both churches effectively, the primary investigator will begin recruiting 4 weeks prior to the beginning of the intervention. The primary investigator will attend all church services for two consecutive weeks at each church to recruit participants from all church events and services.

A brief explanation of the study will be provided to the interested study participants. After the brief explanation, each participant will be asked if this is a good time for the primary investigator to speak about additional details of the study, and ask a few screening questions that would take about 10 minutes. If the participants agree, an initial screening will be conducted for inclusion criteria.

Selected inclusion criteria for the study are (a) women between the ages of 20 and 70 who self-identify as African American and female; (b) self-identified African American

women who are members of either study church; (c) self-identified African American women who have weekly access to a landline telephone, cellular telephone with text capability, and/or an active email account; and (d) are able to speak English.

Exclusion criteria are (a) women less than 20 and greater than 70, (b) women who have a self-reported illness or physical disability that interferes with physical activity engagement, (c) non-African American, (d) male, and (e) non-English speaking. If cleared for the study, participants will be provided an initial assessment appointment that will take place 40 minutes prior to the first one-hour assessment on the first day of the investigation. All forms used in this study will be provided in English.

Initial Assessment

At the initial assessment, the primary investigator will meet with the study participants in the private room in the church. The study participants can complete the consent form and initial assessment forms that are expected to take about 40 minutes or less in one visit. If the allotted time for the initial assessment is not feasible for the participant, an alternate time prior to the start of the intervention can be determined to meet the participant either at the church, their home, or in a designated location. The participants may read the consent and assessments on their own, or have the forms read to them. All questionnaires will include questions about knowledge, social support, self-regulation, self-efficacy, and physical activity.

At the initial assessment, self-reported height and weight (with shoes and street clothes on) will be collected from the participants. If the participants are unsure of their weight and height, participants will be measured using the calibrated stadiometer, and the Detecto potable scale. Healthy snacks will be provided at all weekly intervention, and post-intervention sessions.

The intervention group will be instructed that a weekly telephone, text, or email message will be received about the benefits of physical activity for four messages over 4 weeks. The participants will provide the days and times that the messages will be received. The study participants will be provided a study identification number at this time to maintain confidentiality.

The participants will be provided dates for the remaining sessions, along with a separate date, two weeks after the 4-week intervention, to complete the post-intervention questionnaires. All dates will be recorded in a calendar. Index cards with the respective dates will be provided to each participant. The \$15.00 dollar Wal-Mart gift card compensation will be provided on the date that is provided to complete the post-intervention questionnaires.

At the end of 6 weeks (2 weeks post-intervention), the final questionnaires will be completed. The participants will be given the study questionnaires to complete along with a healthy snack. The questionnaires will include information about knowledge, social support, self-regulation, self-efficacy, and physical activity. The participants may have questionnaires read to them or they may read them on their own. The participants will be given the \$15.00 dollar Wal-Mart gift card at this time.

Recruitment

Recruitment Preparation and Protocol

- a) Materials: Laptop (secure personal laptop)
- b) After arriving at the church, notify the appropriate personnel of attendance.
- c) Set up materials and recruitment roster (name and telephone number) in the designated area.
- d) Schedule appointments (to include participant's name and telephone number).
- e) Provide the date of the initial assessment to complete the screening, consent, and pre-intervention forms (consent and questionnaires).

Screening

- a) Materials: Laptop (secure personal laptop)
- b) After arriving at the church, notify the appropriate personnel of attendance.
- c) Set up materials (screening form, scale, and stadiometer in the designated, private room.
- d) Complete screening form.
- e) If the participants are not eligible, thank them for their interest in the study. Let them know that at this time, we are only including women between the ages of 20 and 70 years of age who self-identify as African American, who are members of either the intervention or control churches, who have weekly access to a landline telephone, a cellular telephone with text capability, and/or an active email account, and are English speaking.
- f) If further review is needed to determine eligibility, let the participant know that the primary investigator will call within a week to determine if the initial study criteria is met. If the criteria are met, the participant will be scheduled for an initial interview. If eligible, provide a manila folder with all of the pre-intervention forms.

Screening Script

Thank you for your interest in the GET FIT DON'T QUIT intervention. As a part of this research study, we will meet for one hour each week over the next four weeks to discuss, implement, and strategize, how to increase physical activity in your daily life. We have a screening process to ensure that you meet the selection criteria to participate in the study. The program focuses on the effect of knowledge, self-regulation, and social facilitation and how each will predict physical activity engagement over 4 weeks. Is this a good time to speak to you about the study and ask some screening questions? It should take about 10 minutes.

IF NO [provide the response below],

If we do not already have your information [please ask] would you please give me your name, address, and telephone number. We will call you at a later time. When is a good time to call you back?

Date: _____ Time: _____

IF YES, [continue below]

In this study, you will participate in several different sessions to assist with increasing physical activity. First, I would like to ask you some basic questions. Then I will proceed with more study details.

1. What are your first and last initials?
2. What is your age?
3. What is your birthdate?
4. What is your gender
5. What your ethnicity?
6. What is your height?
7. What is your weight?
8. What is your church affiliation (what church do you attend)?
 - a. A number beginning with the number one will be assigned to forms in the upper right hand corner.
9. Do you have any self-reported disabilities that would prohibit you from participating in physical activity?
 - a. Yes
 - b. No
10. What is your email address?
11. What is your landline telephone or cellular number? Please identify as landline or cellular.

[IF ELIGIBLE]

Now, I would like to give you more details about the study.

If eligible, you will be in the program for 6 weeks. After 4 weeks, you will be asked to return 2 weeks later (6 weeks total) to complete the post-intervention questionnaires. We will set up a time to meet with you for an Initial Assessment at the church. If unable to meet at the church, we can meet at your home (on a day and time that you prefer), or at a designated location. You will then sign a paper saying that you agree to be a part of the research study. At this visit, we will request your self-reported weight and height. If you are unable to provide your self-reported weight and height, we will measure your weight with a calibrated Detecto scale, and your height with calibrated stadiometer.

You will also answer *study questionnaires* that include questions about being physically active, how confident you are that can increase your physical activity engagement, and the amount of social support that you receive. In this program, you will receive one landline telephone call, text via cellular telephone, or an email once per week on the benefits of physical activity. You will choose the type of message that you would like to receive and the day and the approximate time of day during the week when you want to receive your message (Appendix B).

In this program, the risks to you may involve a feeling of uneasiness about answering personal questions. The potential personal benefits are increasing your physical activity. At the end of the 4 weeks, we will ask you to return 2 weeks after the 4-week session to complete the post-intervention questionnaires.

One more thing—you will never be identified by name in any report, and you are free to leave the research study at any time.

Do you have any questions about the research program?

After the Screening is Complete

Schedule initial health assessment on the appointment schedule calendar and provide the index card with the dates to the participant.

You will receive an appointment date on site after the screener is complete. Please call us at the number on the flyer if you cannot make the appointment. You will also receive a reminder call for your 2-week post-intervention assessment questionnaires (2 weeks after the 4-week intervention is complete).

Recording and Documentation

- Prepare the participant's folder

- All participants will receive a manila folder with study questionnaires and a form selecting the day, date, and time that they would like to be contacted about physical activity (Appendix B).

Initial Assessment Preparation and Protocol

- a. Upon arrival at the facility, notify appropriate personnel that you are there.
- b. Materials to set up ahead of time
 - i. Set up the consent form on the display table.
 - ii. Set up the manila folders with their completed screening questionnaire and the study questionnaires.
- c. Refer to the appointment calendar for Initial Assessment appointments.
- d. Verify participant's name (correct spelling) and date of birth in the manila folder.
- e. Consent
 - i. Participants will be given consents on clipboard for reading and signature.
 - ii. The primary investigator will go over the consent script prior to having the participant read the consent.
 - iii. The original consent will be placed in a separate manila folder and a copy will be given to the participant.
- f. Conduct height and weight assessment.
 - i. Self-reported weight and height (with street clothes and shoes on) will be provided to the primary investigator. If height and weight are not known, these will be measured using a calibrated Detecto scale and a calibrated stadiometer.
- g. Questionnaires
 - i. Place study questionnaires on clipboard and provide a pencil.
 - ii. Give participant option to read questionnaires themselves or have a research team member read them aloud.
 - iii. Inform participants that if there are any questions they do not want to answer, to circle and initial that question(s).
 - iv. Review all questionnaires after they are completed to make sure each question has been addressed.
- h. Provide participants with a snack and water.
- i. Give participant the form that allows them to select a day and time to receive their email or telephone reminder concerning the benefits of physical activity (Appendix B).
- j. Return consents and study questionnaires in an accordion folder, to research office the following business day.

- k. All assessments will be reviewed by the primary investigator.

Consenting Participants

When the participant arrives, give them a name tag with their first name. Then ask:

"Some people find it easier to have the consent and questionnaires read to them, and others find it easier to read and complete the consent and questionnaires on their own. You can choose the way that you think would be best for you. What is your preference?"

Study consent

- Read the consent form or have the participant read it themselves based on their preference.
- Ask periodically if they have questions.
- Ask them questions to ascertain their understanding.
- **At the end summarize, the consent.**
- The person administering the consent and the participant must sign 2 copies.
- Give the participant one of the copies and tell them to keep it in a safe place to refer back to if needed. The second copy goes into the brown envelope.

Important:

- All of your questionnaires and physical information will be maintained using an identification number and will be kept separate from your name at all times.

Additional Assessment:

- Two weeks after the 4-week intervention, you will be asked to return to answer questionnaires again, and have your height and weight measured. If height and weight are not known, these will be measured using a calibrated Detecto scale and a calibrated stadiometer.

Study Questionnaires

- All study questionnaires are printed in English and are located in the Appendix of a separate document.
- Questionnaires should have the study ID number
- Use a number 2 pencil.
- Erase if want to change a response.
- Read the introduction to the women.
- The participant should be offered an opportunity to have all questionnaires read to them.
- Check all pages to be sure the questionnaire is complete.

Order of Administration of the Questionnaires

Baseline:

- Knowledge of Physical Activity Questionnaire
- Physical Activity Assessment Inventory
- Social Support and Exercise Scale
- Short Self-Regulation Questionnaire
- Self-Efficacy for Exercise Scale
- Godin-Shephard Leisure Time Physical Activity Questionnaire

Two weeks post-intervention:

- Knowledge of Physical Activity Questionnaire
- Physical Activity Assessment Inventory
- Social Support and Exercise Scale
- Short Self-Regulation Questionnaire
- Self-Efficacy for Exercise Scale
- Godin-Shephard Leisure Time Physical Activity Questionnaire

Final Assessment (Conducted Week 6; 2 Weeks Post-Intervention)

- a. Upon arrival at the facility, notify appropriate personnel that you are there.
- b. Materials to set up ahead of time
 - i. Set up the manila folders with the questionnaires on the display table.
 - ii. Verify participant's name (correct spelling) and date of birth in the manila folder.
 - iii. Conduct the height and weight assessment. If the participants are unsure of their weight and height, participants will be measured using the calibrated stadiometer, and the Detecto portable scale.
- c. Questionnaires
 - i. Place study questionnaires on clipboard and provide a pencil.

- ii. Give participant option to read questionnaires themselves or have a research team member read them aloud.
- iii. Inform participants that if there are any questions they do not want to answer, to circle and initial that question(s).
- iv. Review all questionnaires after they are completed to make sure each question has been addressed
- v. Provide participants with snack and water.
- vi. Give participant their financial compensation (\$15 Wal-Mart Gift Card).
- vii. Return consents, study questionnaires, and receipts in accordion folder, to research office the following business day.
- viii. All assessments will be reviewed by the primary investigator.

Supplies/Equipment

- Detecto Scale
- Stadiometer

Subject packet (materials place in accordion folder):

- Manila Folders
- Study consent brown envelope
- Consent form
- Time and Date Forms: Physical Activity Benefits Reminder
- Appointment Reminder Index Card
- Gift card
 - Receipt (2 weeks post-intervention)
- Snacks and drinks
- Paper towels
- Hand Sanitizer

Dress Code

Proper attire sets the tone for the level of professionalism that is expected. A professional, business casual dress code is required. This includes suits, business dresses, pants suits and dress skirts. Attire that reveals too much cleavage, your back, your chest, your stomach or your underwear is not appropriate. Skirts and dresses that are short, tight and ride halfway up the thigh are inappropriate for work. Inappropriate dress includes mini-skirts, skorts, sundresses, beach dresses, spaghetti-strap dresses, and T shirts. It is expected that staff will wear appropriate professional attire at all times. No flip-flops or jeans.

TEAM MEMBER AND TELEPHONE NUMBER

Elicia S. Collins	ecollins12@student.gsu.edu	Cell: 678-201-7761
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Appendix A. Recruitment Roster

RECRUITMENT ROSTER

GET FIT DON'T QUIT

[illegible]

Appendix B. Time and Date Form

1. What would be a good day and time to provide your weekly benefits of physical activity reminders?

- a. Day: _____

- b. Time: _____

2. How should we contact you?

- a. Email:

- b. Landline Telephone Number:

- c. Cellular Telephone Number:

Appendix J. Facts Sheets



Top Questions About Healthy Weight and Women

What is a healthy weight? The answer is different for everyone. It's important to know what a healthy weight is for you. Your weight — whether too high or too low — can affect your ability to get pregnant or can cause problems during pregnancy. Women often gain and lose weight differently, so the steps you need to take to lose weight may be different from the steps someone else needs to take.

Q: How do I know if I'm at a healthy weight?

A: You can use the body mass index (BMI) to find out whether your weight is in a healthy or unhealthy range. BMI is a tool that uses your height and weight to estimate body fat.

Another way to figure out if you have a healthy weight is to measure your waist circumference (the distance around your waist). Women with a waist circumference larger than 35 inches are at higher risk for many health problems caused by overweight or obesity.

Q: What are the health effects for women who are at an unhealthy weight?

A: Underweight, overweight, and obesity raise your risk for many serious health problems:

- **Menstrual cycle problems.** Losing too much weight can cause periods to be less regular or stop completely.
- **Osteoporosis.** Underweight increases your risk of osteoporosis, a condition that causes bones to become weak and break easily.
- **Depression.** Studies show that depression is more common in women who are underweight than women who are at a healthy weight.

- **Breathing problems.** Women who have overweight or obesity may develop sleep apnea.
- **Cancer.** Women who have overweight or obesity are more at risk for 13 different kinds of cancer.
- **Diabetes.** Extra weight makes you twice as likely to get diabetes.
- **Heart and brain problems.** Overweight and obesity increase your risks for heart disease, stroke, high blood pressure, and high cholesterol.
- **Pregnancy problems.** If you have underweight, overweight, or obesity, it may be more difficult to get pregnant. Overweight and obesity can also cause complications during pregnancy.

Q: What can make it more likely that I'll gain weight?

A: Things that can affect your weight include:

- **Genes and family background.** Obesity tends to run in families. But there is not one "fat" gene.
- **Metabolism.** A woman's metabolism (how fast the body "burns" calories) may change throughout her life, such as with the hormonal changes that happen during puberty, pregnancy, and menopause.
- **Age.** Your metabolism may slow down as you get older.
- **Trauma.** Women who experience serious negative events during childhood, such as abuse, are more likely to have obesity as adults.

- **Medicines.** Some medicines, such as those for mental health conditions, sleep, and high blood pressure, can cause weight gain or make it difficult to lose weight.
- **Sleep.** Not getting enough high-quality sleep can lead to weight gain.

Q: What are some tips for successful weight loss?

A: How quickly you gain or lose weight can be very different from other people based on your specific genes, biology, and past. Try some or all of the following tips to help:

- Set realistic goals. Talk to your doctor or nurse about your goals and ways to achieve them.
- Plan your meals ahead of time, and cook more at home.
- Focus on eating healthy foods. Getting calories mostly from lean protein, whole grains, and fruits and vegetables may help you lose weight safely.

- Track your food and fitness. Include the calories that you drink each day.
- Limit screen time. Get moving instead!
- Make sure you get enough sleep, and manage stress, which can make weight gain more likely.

Q: When should I talk to a doctor or nurse about my weight?

A: If you are worried about your weight, or if you have underweight, overweight, or obesity, talk to your doctor or nurse.

Your doctor or nurse will ask you questions and may do tests to learn more about what is causing your weight gain or loss. Your doctor or nurse may suggest healthy eating changes and physical activity to help you reach a healthy weight.

For more information...

For more information about healthy weight, call the OWH Helpline at 1-800-994-9662 or contact the following organizations:

Centers for Disease Control and Prevention (CDC), HHS
1-800-232-4636 • www.cdc.gov/healthyweight/losing_weight/index.html

U.S. Department of Agriculture Food and Nutrition Information Center
301-504-5755 • www.nal.usda.gov/fnic/weight-and-obesity

ChooseMyPlate.gov
www.choosemyplate.gov/physical-activity.html

National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), NIH, HHS
1-800-860-8747 • www.niddk.nih.gov/health-information/communication-programs/win

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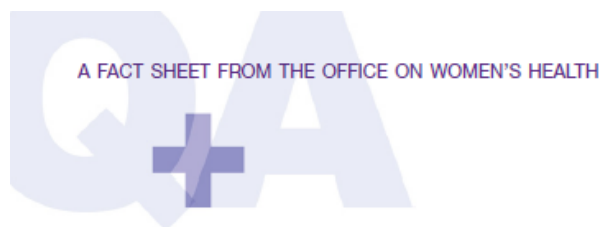


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U.S. GOVERNMENT



Heart Disease and Women

Heart disease is the number one killer of American women. Some heart disease symptoms and risk factors are different for women than men. Some risk factors, such as obesity, metabolic syndrome, and depression, happen more often in women. Women also have unique risk factors for heart disease, such as menopause. Some heart disease risk factors, such as diabetes and smoking, are even more dangerous for women. Women do worse after heart attacks compared to men, and women are less likely to join and complete a cardiac rehab program.

Q: What is heart disease?

A: "Heart disease" refers to several types of problems that affect the heart. The most common type of heart disease is coronary artery disease (CAD), also called coronary heart disease. In CAD, plaque builds up on the walls of the arteries that carry blood to the heart. Over time, this buildup causes the arteries to narrow and harden, a process called atherosclerosis. This prevents the heart from getting all the blood it needs. It can also cause a blood clot to develop. If the clot blocks blood flow to the heart it can cause a heart attack.

Q: How do I know if I have heart disease?

A: Heart disease often has no symptoms you can feel, like pain or shortness of breath. Two out of every 3 women who die suddenly from heart disease did not have symptoms.

But there are some signs to watch for. Chest or arm pain or discomfort can be a symptom of heart disease or a warning sign of a heart attack. Women often describe a burning chest pain or pain in the back, neck or jaw. See the 7 signs of a heart attack at the womenshealth.gov/heartattack website. Call 911 if you think you are having a heart attack, rather than driving yourself to the hospital.

If you think you may have heart disease, talk to your doctor. He or she will do tests and ask about your family medical history and health behaviors like smoking, physical activity, and healthy eating.

Q: What do I need to know about my risk for heart disease?

A: Certain habits and health problems raise your risk for heart disease. You can control many of the risk factors for heart disease.

- **Habits you can control** include not smoking, eating healthy, getting physical activity, limiting alcohol, and reducing stress. Talk to your doctor and nurse about steps you can take to quit smoking, eat healthier, and lower your stress.
- **Health problems you can improve** include high blood pressure, high cholesterol, overweight and obesity, and diabetes. If you have one or more of these health problems, work with your doctor or nurse to make healthy changes to lower your risk. Your doctor may also prescribe medicine to help you control your blood pressure or cholesterol.
- **Risk factors you can't control** include your age, family history, and menopause. Knowing about risk factors you can't control can help you and your doctor decide on a plan to reduce other risk factors for heart disease.

Q: How does pregnancy affect my risk for heart disease?

A: Tell your primary care doctor if you have had gestational high blood pressure, gestational diabetes, or preeclampsia during a past pregnancy. These pregnancy problems are also signs that you are at higher risk for heart disease later in life, after pregnancy. Talk to your doctor or nurse about ways to lower your risk for heart disease.

Q: How does menopause affect my risk for heart disease?

A: Women usually get heart disease about 10 years after men do. This is because until menopause, the ovaries make the hormone estrogen. Estrogen gives premenopausal women some protection against heart disease by keeping blood vessels relaxed and a healthy cholesterol balance.

Q: Does birth control affect my risk for heart disease?

A: Most types of birth control are safe for young, healthy, nonsmoking women. Certain types of combination hormonal birth control (birth control with both estrogen and progesterone), such as the pill, skin patch, or vaginal ring, may raise your risk for heart disease if you are older than 35 or if you have high blood pressure, diabetes, or high cholesterol. If you smoke, do not use hormonal birth control.



For more information...

For more information about heart disease, call the OWH Helpline at 800-994-9662 or contact the following organizations:

- **National Heart, Lung, and Blood Institute**
Phone Number: 301-592-8573
www.nhlbi.nih.gov
- **American Heart Association**
Phone Number: 800-AHA-USA1
www.heart.org

- **Centers for Disease Control and Prevention**
Phone Number: 800-232-4636
www.cdc.gov
- **Women's Heart Foundation**
www.womensheart.org

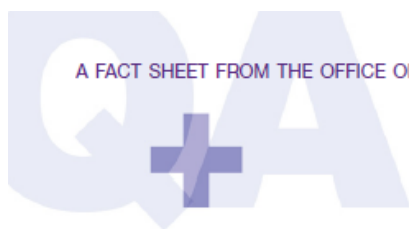
The Office on Women's Health is grateful for the additional reviews by:

- National Heart, Lung, and Blood Institute staff
- Harlan Krumholz, M.D., Cardiologist, Director, Center for Outcomes Research and Evaluation, Yale University and Yale-New Haven Hospital
- Rachel Dreyer, Ph.D., Postdoctoral Associate in Medicine (Cardiology), Center for Outcomes Research and Evaluation, Yale University

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A FACT SHEET FROM THE OFFICE ON WOMEN'S HEALTH

Stroke and Women

A stroke, sometimes called a “brain attack,” happens when blood flow to a part of the brain stops or is blocked and brain cells begin to die. Stroke is the fourth leading cause of death for women. Stroke also kills more women than men each year. Women have some unique risk factors for stroke, including hormonal birth control use, menopause, and certain pregnancy problems like preeclampsia. A stroke can leave you permanently disabled. But many strokes are preventable or treatable.

Q: How does stroke affect women differently than men?

A: Stroke affects women differently than men in several ways:

- More women than men die from stroke. This is because more women have strokes later in life and women live longer than men. But women between 45 and 54 years of age are also more likely to have a stroke than men of the same age.
- More women than men have another stroke within five years of the first stroke.

Q: What are the symptoms of stroke in women?

A: Stroke symptoms come on suddenly. The **most common symptoms** are:

- Numbness or weakness of the face, arm, or leg, especially on only one side of the body
- Confusion or trouble speaking or understanding
- Trouble seeing in one or both eyes
- Trouble walking, dizziness, or loss of balance or coordination
- Severe headache with no known cause

Q: What do I need to know about my risk for stroke?

A: Certain habits and health problems raise your risk for stroke. You can control many of the risk factors for stroke.

- **Habits you can control** include not smoking, eating healthy, getting physical activity, limiting alcohol, and reducing stress. Talk to your doctor and nurse about steps you can take to quit smoking, eat healthier, and lower your stress.
- **Health problems you can improve** include high blood pressure—the leading risk factor for stroke, high cholesterol, overweight and obesity, and diabetes. If you have one or more of these health problems, work with your doctor and nurse to make healthy changes to lower your risk. Your doctor may also give you medicine to help control your blood pressure or cholesterol.
- **Risk factors you can't control** include your age, family history, and menopause. Knowing about risk factors you can't control can help you and your doctor decide on a plan to reduce any other risk factors for stroke.

Q: What risk factors for stroke are unique to women?

A: Some risk factors for stroke are unique to women. These can include:

- Having a history of problems during pregnancy, such as gestational diabetes or preeclampsia
- Using hormonal birth control (certain types of combination pills, patches, and vaginal rings)
- Using menopausal hormone therapy during or after menopause

www.womenshealth.gov | 800-994-9662



- Having a waist size larger than 35 inches, with a triglyceride level greater than 128 milligrams per deciliter

Other risk factors for stroke that can affect men but are more common in women include migraines with aura, atrial fibrillation (irregular heartbeat), and diabetes.

Q: Why does pregnancy affect my stroke risk?

A: During and soon after pregnancy, your risk for stroke is higher. Although pregnancy-related stroke is not common, the number of women who have a stroke during or soon after pregnancy is going up. African-American women, women older than 35, and women who have lupus or

migraines are more at risk for pregnancy-related strokes. Health problems that can happen during pregnancy, such as preeclampsia, gestational hypertension, and gestational diabetes, also increase stroke risk later in life.

Q: How does menopause affect my stroke risk?

A: Menopause raises your risk of stroke because your ovaries stop making estrogen. Estrogen is a hormone that may help keep blood vessels relaxed and open and help the body maintain a healthy balance of good and bad cholesterol. Without estrogen, cholesterol may start building up on artery walls. This can lead to stroke and other types of heart disease.

For more information...

For more information about stroke and women, call the OWH Helpline at 800-994-9662 or contact the following organizations:

- **National Heart, Lung, and Blood Institute**
Phone Number: 301-592-8573
www.nhlbi.nih.gov
- **American Stroke Association**
Phone Number: 888-478-7653
www.strokeassociation.org
- **Centers for Disease Control and Prevention**
Phone Number: 800-232-4636
www.cdc.gov

The Office on Women's Health is grateful for the additional reviews by:

- National Institute of Neurological Disorders and Stroke staff
- Cheryl Bushnell, M.D., M.H.S., Professor of Neurology, Director, Wake Forest Baptist Stroke Center, Wake Forest Baptist Health

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Heart-Healthy Eating

Heart-healthy eating is key to lowering your risk for heart disease and stroke. Heart-healthy eating means that you eat the right amount of healthy foods from all of the food groups for your age, weight, and height. Heart-healthy eating also means you do not eat a lot of foods that are high in sodium or have added sugars, too many calories, or unhealthy fats.

Q: What foods should I eat to help lower my risk for heart disease and stroke?

A: Choose a variety of foods from across all of the food groups.

- **Fruits and vegetables.** At least half of your plate should be fruits and vegetables.
- **Grains.** At least half of your grains should be whole grains.
- **Fat-free or low-fat dairy products.** These include milk, calcium-fortified soy drinks (soy milk), cheese, yogurt, and other milk products.
- **Different types of protein,** including seafood, skinless poultry, lean meats, beans, eggs, soy products, seeds, and unsalted nuts.
- **Oils.** Sources of healthier oils and fats include avocados, olives, and canola and olive oils.

Q: What foods should I limit to lower my risk of heart disease and stroke?

A: You should limit:

- **Saturated fats.** These fats are found in foods such as pizza, ice cream, fried chicken, many cakes and cookies, bacon, and hamburgers.

Check the Nutrition Facts label for saturated fat. Less than 10% of your daily calories should be from saturated fats.

- **Trans fats.** These fats are found mainly in commercially prepared baked goods, snack foods, and margarine. Check the Nutrition Facts label and choose foods with no trans fats as much as possible.
- **Sodium.** Sodium is found in salt, but most of the sodium we eat is not from salt that we add while cooking or at the table. Most of our sodium comes from processed foods like breads and rolls, cold cuts, pizza, hot dogs, cheese, pasta dishes, and condiments (like ketchup and mustard). Limit your daily sodium to less than 2,300 milligrams (equal to a teaspoon), unless your doctor says something else. Check the Nutrition Facts label for sodium. Foods with 20% or more of the "Daily Value" of sodium are high in sodium.
- **Added sugars.** Foods like fruit and dairy products naturally contain sugar. But you should limit foods that contain added sugars. These foods include sodas, sports drinks, cakes, candy, and ice cream. Check the Nutrition Facts label for added sugars and limit how much food with added sugars you eat.

Q: How can I tell what is in the foods I eat?

A: The Nutrition Facts label on most packaged foods has information about how many calories and how much saturated fat, trans fat, cholesterol, sodium, and added sugars are in each serving.

For food that does not have a Nutrition Facts label, such as fresh salmon or a raw apple, you can use the MyPlate SuperTracker "Food-A-Pedia" tool at <https://www.supertracker.usda.gov/foodapedia.aspx>.

Q: What tools can help me choose foods that are good for my heart?

A: The following resources can help you choose heart-healthy foods:

- **ChooseMyPlate** (choosemyplate.gov). This resource is based on the *Dietary Guidelines for Americans*. You can use the SuperTracker tool to create a personal daily food plan based on your goals.
- **Dietary Approaches to Stop Hypertension (DASH) eating plan** (www.nhlbi.nih.gov/health/health-topics/topics/dash). The DASH diet is for people with hypertension to help them lower their blood pressure. But it can also be used to help prevent heart disease.
- **Therapeutic Lifestyle Changes (TLC) diet** (www.nhlbi.nih.gov/health/public/heart/cholesterol_tlc.pdf, PDF file, 1.7 MB). The TLC diet helps people with unhealthy cholesterol levels.

For more information...

For more information on heart-healthy eating, call the OWH Helpline at 800-994-9662 or contact the following organizations:

ChooseMyPlate

www.choosemyplate.gov

National Heart, Lung, and Blood Institute (NHLBI)

Phone: 301-592-8573 • www.nhlbi.nih.gov

Nutrition.gov

www.nutrition.gov

American Heart Association

Phone: 800-242-8721 (English) or 888-474-8183 (Spanish) • www.heart.org

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www.facebook.com/HHSOWH



www.twitter.com/WomensHealth



www.youtube.com/WomensHealthgov

www.womenshealth.gov | 800-994-9662



Appendix K. Flyer

STUDY PARTICIPANTS NEEDED



Are you interested in increasing your physical activity level? If the answer is yes, we would like to hear from you. The purpose of this study is to learn about the effects that increase physical activity in African American women. This study involves actual face-to-face visits, text messaging, telephone calls, and/or email messaging. There will be approximately 34 African American women in this study. We will be requesting up to 6 hours of your time. The location for the study will be two different Baptist churches. One church is in Clayton County (Travelers Rest Baptist Church), and the other is in Henry County (Floyd Chapel Baptist Church). You will receive a \$15.00 gift card for your participation.

Participants should be

- Female
- Between the ages of 20 and 70
- Self-identifies as African American
- Member in one of the study churches
- Have weekly access to a cellular, landline, or email
- Able to speak English

If you are interested in receiving more information about this study, contact Elicia, a doctoral nursing student, Georgia State University, at 678-201-7761. You can also email Elicia at ecollins12@student.gsu.edu

Thank you!

Appendix L. Demographic Form

1. Initials: _____
2. Age: _____
3. Date of Birth: _____
4. Gender: _____
5. Ethnicity: _____
6. Height: _____
7. Weight: _____
8. Church Affiliation: _____
9. Do you have any self-reported disabilities that would prohibit you from
participating in physical activity? Yes or No
10. What is your email address? _____
11. What is your mailing address? _____
12. What is your landline telephone number? _____
13. What is your cellular telephone number? _____

Appendix M. Consent Forms

Control Group

Georgia State University
Department of Nursing
Informed Consent-C

Title: Effects of knowledge, beliefs, self-regulation, and social facilitation on physical activity of African American women

Principal Investigator: Dr. Joan Cranford

Student Principal Investigator: Elicia S. Collins

I. Purpose: The purpose of this study is to learn about the effects that increase physical activity in African American women. You are invited to be a part of the study because you are a woman greater than 20 years old. You are African American. You are a member in one of the study churches. You may have access to a home telephone and a cell phone. You have access to an email. You are able to speak English. Thirty-four participants will be recruited for this study. Participation will require two hours of your time over 6 weeks beginning October 2018 and ending December 2018.

II. Procedures: If you decide to participate in the study, you will be asked to fill out several surveys before the study. One hour is needed to complete all surveys before the study. All pre surveys will be collected at the end of the first session.

You will be asked for an email or a home address. Information about health and wellness will be sent to you. The information will be sent every week for a total of four weeks.

One hour is needed to complete all surveys after the study. You will be asked to return at the end of six weeks to complete the surveys. All surveys completed after the study will be collected at the end of the study. The total time for the entire study is two hours. Each of the survey sessions will be held in a quiet area of Floyd Chapel Baptist Church.

Two weeks after the intervention is complete, participants in the control group will be offered the intervention.

III. Future Research: Researchers will remove information that may identify you and may use your data for future research. If we do this, we will not ask for any additional consent for you.

IV. Risks: In this study, you will not have any more risks than you would in a normal day of life. But, you may feel sad or upset when completing the questionnaires. If this should occur, and further follow up is needed, you can notify the student investigator, Elicia Collins, or Dr. Cranford, the primary investigator, for further discussion about your feelings. If other services are still needed, we can provide you with information about counseling services at the Georgia State University Psychology Clinic. The number to the office is 404-413-6229. You will be responsible for all clinic fees.

V. Benefits: Participation in this study may not benefit you personally. Overall, we hope to get information about how to increase physical activity in African American women.

VI. Alternatives: The alternative to taking part in this study is to not take part in the study.

VII. Compensation: You will receive a \$15.00 dollar Wal-Mart gift card for participating in the study.

VIII. Voluntary Participation and Withdrawal: You do not have to be in this study. If you decide to be in the study and change your mind, you have the right to drop out at any time. You may skip questions or stop participating at

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APPROVED
IRB NUMBER: H19073
IRB APPROVAL DATE: 10/04/2018
IRB EXPIRATION DATE: 10/03/2019

any time. You may refuse to take part in the study or stop at any time. Whatever you decide, you will not lose any benefits to which you are otherwise entitled.

IX. Confidentiality: We will keep your records private to the extent allowed by law. The following people and entities will have access to the information you provide:

- Dr. Cranford
- Elicia Collins
- GSU Institutional Review Board
- Office for Human Research Protection (OHRP)

We will use a study number rather than your name on study records. The information you provide will be stored and kept separate in a locked box. All forms and special coded surveys will be placed in separate locked boxes. Both locked boxes will be kept in a locked cabinet in the primary investigator's office for 10 years. After 10 years, all the documents will be destroyed and shredded. All information put into the computer will be protected by a firewall with a special username and password. The information will be available only to the primary investigator and research team. When we present or publish the results of this study, we will not use your name or other information that may identify you.

X. Contact Persons: Contact: Elicia S. Collins, Student PI at 678-201-7761 or email at ecollins12@student.gsu.edu

You can also contact Dr. Joan Cranford at 404-413-1195 or email at jcranford2@gsu.edu

- if you have questions about the study or your part in it
- if you have questions, concerns, or complaints about the study

Contact the GSU Office of Human Research Protections at 404-413-3500 or irb@gsu.edu

- if you have questions about your rights as a participant
- if you have questions, concerns, or complaints about the research

XI. Copy of Consent Form to Participant: We will give you a copy of this consent form to keep.

If you are willing to volunteer for this research, please sign below.

Printed Name of Participant

Signature of Participant

Date

Principal Investigator or Researcher Obtaining Consent

Date

Version Date: October 2018

GSU
APPROVED IRB NUMBER: H19073
IRB APPROVAL DATE: 10/04/2018
IRB EXPIRATION DATE: 10/03/2019

Treatment Group

Georgia State University
Department of Nursing
Informed Consent-I

Title: Effects of knowledge, beliefs, self-regulation, and social facilitation on physical activity of African American women

Principal Investigator: Dr. Joan Cranford

Student Principal Investigator: Elicia S. Collins

I. Purpose: The purpose of this study is to learn about the effects that increase physical activity in African American women. You are invited to be a part of the study because you are a woman greater than 20 years old. You are African American. You are a member in one of the study churches. You may have access to a home telephone and a cell phone. You have access to an email. You are able to speak English. Thirty-four participants will be recruited for this study. Participation will require six hours of your time over 6 weeks beginning October 2018 and ending December 2018.

II. Procedures: If you decide to participate in the study, you will be asked to fill out several surveys before the study. You will be asked to share information in four sessions. You will be asked to complete surveys at the end of the study. One hour is needed to complete all surveys before the study. All pre surveys will be collected at the end of the first session.

There will be four study sessions. One hour is needed for each study session for a total of four hours. The study sessions may include discussion, demonstrations, and role modeling. You may be asked to look at pictures, brochures, and videos. You will be asked to be audio recorded during all study sessions. Each of the sessions will be held in a quiet area of Travelers Rest Baptist Church.

One hour is needed to complete all surveys after the study. You will be asked to return at the end of six weeks to complete the surveys after the study. All surveys completed after the study will be collected at the end of the study. The total time commitment for the entire study is six hours.

III. Future Research: Researchers will remove information that may identify you and may use your data for future research. If we do this, we will not ask for any additional consent for you.

IV. Risks: In this study, you will not have any more risks than you would in a normal day of life. But, you may feel sad or upset when taking part in the individual sessions. If this should occur, and further follow up is needed, you can notify the student investigator, Elicia Collins, or Dr. Cranford, the primary investigator, for further discussion about your feelings. If other services are still needed, we can provide you with information about counseling services at the Georgia State University Psychology Clinic. The number to the office is 404-413-6229. You will be responsible for all clinic fees.

V. Benefits: Participation in this study may not benefit you personally. Overall, we hope to get information about how to increase physical activity in African American women.

VI. Alternatives: The alternative to taking part in this study is to not take part in the study.

VII. Compensation: You will receive a \$15.00 dollar Wal-Mart gift card for participating in the study.

VIII. Voluntary Participation and Withdrawal: You do not have to be in this study. If you decide to be in the study and change your mind, you have the right to drop out at any time. You may skip questions or stop participating at

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IRB APPROVAL DATE: 10/04/2018

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any time. You may refuse to take part in the study or stop at any time. Whatever you decide, you will not lose any benefits to which you are otherwise entitled.

IX. Confidentiality: We will keep your records private to the extent allowed by law. The following people and entities will have access to the information you provide:

- Dr. Cranford
- Elicia Collins
- GSU Institutional Review Board
- Office for Human Research Protection (OHRP)

We will use a study number rather than your name on study records. The information you provide will be stored and kept separate in a locked box. All forms and special coded surveys will be placed in separate locked boxes. Both locked boxes will be kept in a locked cabinet in the primary investigator's office for 10 years. After 10 years, all the documents will be destroyed and shredded. All information put into the computer will be protected by a firewall with a special username and password. The information will be available only to the primary investigator and research team. When we present or publish the results of this study, we will not use your name or other information that may identify you.

X. Contact Persons: Contact: Elicia S. Collins, Student PI at 678-201-7761 or email at ecollins12@student.gsu.edu

You can also contact Dr. Joan Cranford at 404-413-1195 or email at jcranford2@gsu.edu

- if you have questions about the study or your part in it
- if you have questions, concerns, or complaints about the study

Contact the GSU Office of Human Research Protections at 404-413-3500 or irb@gsu.edu

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XI. Copy of Consent Form to Participant: We will give you a copy of this consent form to keep.

If you are willing to volunteer for this research and be audio recorded, please sign below.

Printed Name of Participant

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